Electricity on the Farm

A Monthly Magazine for the Progressive Rural Family

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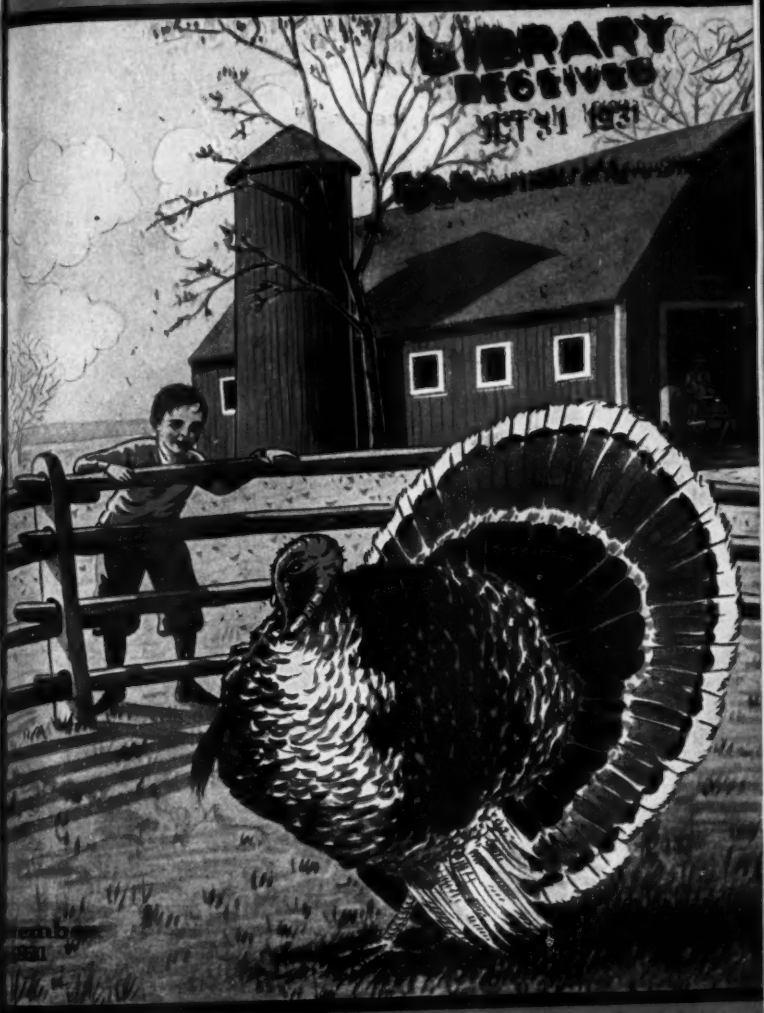

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Fig. 2700
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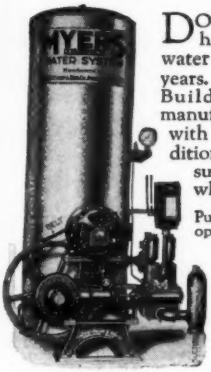

Fig. 2510
Shallow Well System

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Electricity on the Farm

November, 1931
Vol. 4 No. 11

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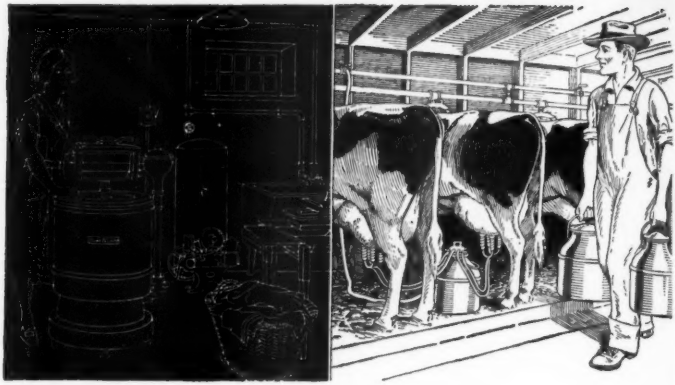

Cut time and cost of farm jobs with small G-E motors

PRACTICALLY every farm chore can be done by a small General Electric motor without attention and at a cost far below that of doing it by hand. A 1/8-hp. motor will do more work than the best hired man and do it for one cent or less per hour.

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Some of the important farm jobs that can be done by fractional-horsepower motors are washing clothes, refrigeration, cleaning, ventilation, shelling corn, cleaning grain, grooming and clipping animals, washing and grading fruits and vegetables, grinding tools, drill and lathe work, churning, washing bottles, spraying, etc.

Send for our new booklet, "Electric Helpers on the Farm." Address Room 317, Building 6, General Electric Company, Schenectady, New York.

Join us in the General Electric Farm Program from WGY Schenectady, every Friday evening at 8:30 o'clock (Eastern Standard)

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GENERAL ELECTRIC

SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

ELECTRICITY ON THE FARM

NOVEMBER, 1931

"November's sky is chill and drear,
November's leaf is red and sear."
—Sir Walter Scott

Thanksgiving Day will soon be here with its good will and its happy recollections.

When our early colonial forebears had set aside a day to offer thanksgiving to God for the mercies extended them during the year, they probably little realized that their action would echo down through the ages. But gratitude will never be old fashioned.

Times may now be trying but when the astounding hardships which these early pioneers endured are recalled, surely we of the present day have infinitely greater cause for thanksgiving than they. Those of us living on farms may have to do without some comforts and luxuries, but few of us will need to go hungry. Unfortunately, as much may not be said of all those residing in cities.

Thanksgiving Day on the farm is particularly pleasant. The cordial community spirit is always present; friends and relatives are near at hand; visiting and entertaining are pleasures on the farm for they are dictates of the heart. And with plenty for the Thanksgiving Table, what more can we ask?

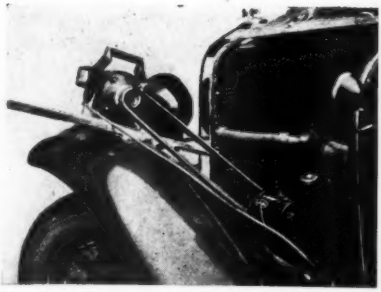
So even if November's sky is drear and November's leaves, brown, there is still plenty for us to be thankful for. Let us join in hearty thanks for those things which we have and which business cycles cannot take from us; health, sustenance and the affection of friends and kin.

Charging the Car Battery with

THE UTILITY MOTOR

By C. N. HINKLE

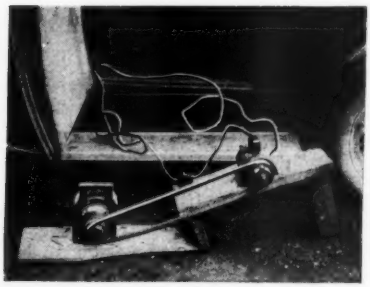
MOST everyone has experienced more or less trouble when starting a car in cold weather. Just when the battery is called upon to do the most work it is only about fifty per cent. efficient. No doubt many slang phrases would be eliminated if A.C. current could be used to operate the starting motor. But a small utility motor when mounted on the car fender and belted to the car generator will bring a big smile on the cold face of any motorist.



Home battery service made possible by belting portable motor direct to car generator.

The pictures show how the battery in a car was easily charged without the usual procedure of taking it to a service shop. A small portable A.C. motor was placed on the fender of the car, the fan belt removed from the generator and a belt was then run from the motor to the car generator.

The motor furnished even power for the job and used only 4.7 amperes of current. The generator was driven about 1000 revolutions per minute and was set to charge ten amperes. If electricity on the farm cost five cents per kilowatt hour, it would cost only the small sum of ten cents to give the battery a four hour charge. This would not only give the battery more energy but would also heat it and increase its efficiency.



Generator being driven by portable motor for battery charging.

If the generator on a car is not driven by the fan belt an old generator can be secured very cheaply from the junk dealer. This can be used for charging any battery. The connections required in this hook up are very simple. Ground the negative pole of the battery to the generator and run a wire from the generator cutout to the positive pole of the battery. It is well to wire an ammeter in the circuit leading to the positive battery terminal. A cutout is not a

(*Continued on page* 41)

Lights Important for

WINTER EGG PRODUCTION

By H. J. GALLAGHER

DURING this period of the year when the days are short and eggs are high in price, the wise poultryman is capitalizing on his electric service by using lights in his poultry house to increase the egg production.

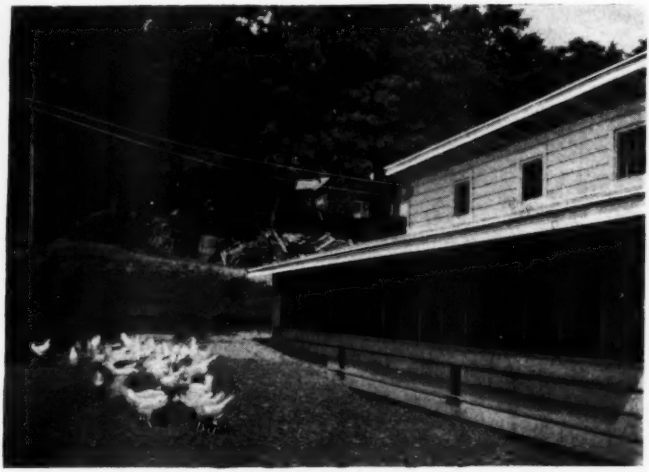
Throughout an eight hour feeding day, birds do not consume enough feed for body maintenance and maximum egg production. Four extra feeding hours provided by means of artificial lighting will result in a ten to thirty per cent increase in egg production during the period of the year lights are used. These additional eggs from the farm flock have often paid for all the electricity used on the farm throughout the entire year.

One 40 watt Mazda lamp for every 200 square feet of floor space of the laying house seems to be the generally accepted amount of light used. Each lamp should be provided with a cone shaped reflector, sixteen inches in diameter and four inches deep. The lights should be six feet from the floor and ten feet apart in the long laying house.

Morning Lights Most Popular

The practice of using lights only in the morning seems to be more general than using a combination of night and morning lights. A snap switch in combination with an alarm clock can be used to turn the lights on.

Many farmers who are using lights in the poultry house fail to receive the full value of the lights by not having water available for the birds as soon as the lamps are lighted. Birds should have free



Well built henhouses have a direct bearing upon egg production.

access to water at all times during the feeding period. Empty or frozen water pans slow up the feeding process and cut down the egg production. Where the water is apt to freeze, some kind of heating device should be used. A good immersion type of heater is more efficient and economical to operate than the type of heater that warms the air beneath the water pan. A coffee can with a lamp receptacle fastened to the cover so a 40 to 60 watt lamp can be used in the can makes a very good immersion type heater. The can should be filled with sand so that it has weight enough to stand upright in the water pan.

During freezing weather, the water heaters should be operated continuously with a supply of fresh water always in the pans. A 40 watt lamp uses less than one kilowatt hour of electricity in twenty-four hours and would generally cost less to operate than the price of one egg.

The alarm clock light control and the "coffee can" heater are only

About three-fourths of an average day's production at Runneymede Farms, near Los Angeles, Calif.

This electrically heated fountain solves the ice problem in the poultry house of H. W. Fitting, near Lafayette, Ind.

two of a great number of ways in which electricity can be satisfactorily used on simple homemade equipment.

In one type of home made alarm clock control for turning lights on in the poultry house, a lever arm is clamped around the knob of a snap switch. On the opposite end of the lever arm a bent nail or piece of wire is used to furnish a support to the stem wind of the alarm which is left in a horizontal position after winding. When the alarm rings, the winding stem turns and releases the support. As the arm drops the switch is turned. On a short lever arm, it may be necessary to add enough weight to the loose end to assure the switch turning.

Creating Contentment in the Rural Home

By Myrtle Murray

MRS. E. B. BOWDEN, who lives near Munday, Knox County, Texas, is a typical farm woman who, by the use of running water, sewage disposal and electrical conveniences, manages a six-room bungalow, has plenty of time to devote to her big job of home-making for her husband and two sons, and also time for community activities. Much of her help comes from a power line which runs near her home.

"And the electricity costs less than it did to send the washing out," beamed Mrs. Bowden. "Now I can do the family washing in two hours. There is also an added economy because I wash the clothes cleaner and more carefully, therefore they last longer."

"And it's a pleasure to have company," she continued smiling, "with my steam pressure cooker and the electric range a company meal can be prepared in such a short time. And I'm not tired at all. We do enjoy the toaster. I sit right here and serve toast hot, while we listen to the best programs over our electric radio."

Mrs. Bowden's house cleaning is reduced to a minimum by the use of a vacuum cleaner. There are many reading lamps conveniently placed in the rooms.

"Reading in the evening under the reading lamps after the day's work is over is one of our greatest joys," says Mrs. Bowden.

GREATER FELCOURT

By E. R. MEACHAM

LAST July we drove down into Surrey to visit Greater Falcourt, England's most famous electrified farm. Here for the past ten years, Mr. R. Borlase Matthews has been putting electricity to work on all sorts of jobs. He has written and talked on the subject so effectively that his name is practically synonymous with rural electrification in England.

I have heard about his farm so long that one of the things I wanted most to see in Great Britain, along with Carnarvon Castle and Lincoln Cathedral, besides the Lakes of Killarney and heather in the Scotch Highlands, was this same Greater Felcourt.

When we reached England, we heard that the General Electric Company, Ltd., was working with Mr. Matthews to make his farm a model for good installations. So before we went out to the farm, we stopped at Magnet House, the London office of the Company. There Mr. F. E. Rowlands told us that they had recently gone over all of the equipment at Greater Felcourt, replacing old models with up-to-date apparatus, and that now the wiring, and the lights, and the various motors represent the best of British rural electrification.

Development Work Under Way

In telling us about his company's part in developing practical machinery for farm jobs, Mr. Rowlands explained that much of the equipment that we would see at Greater Felcourt is in regular every-day use. But he also pointed out that investigations of the more uncommon uses and experiments to develop entirely new uses of electricity on the farm are constantly going on.

Rolling a 5 H. P. motor from one job to another.

Then as a crowning kindness, with one of those gestures of friendliness that we met so often in our journeying through England, he gave us most excellent pictures of some of the machines on the farm.

It was on a grey, drizzly Friday morning that we started for the farm. We crept across London Bridge, picked our way past two-story trams and through swarms of double-decked red and white buses, and took a road to the south. It lay past Croydon Airport, one of the busiest and most important sky harbors of the world. Forty miles through suburban villages brought us to our destination.

Mr. Matthews was not at home, but his secretary, Mr. Edwards,

met us cordially at the farm office and took us about. As we walked toward the barns he told us the size of Greater Felcourt, six hundred acres.

"We take care of fifty milking Shorthorns in these byres," he said.

But whether the byre is the walled-in court yard or one of the sturdy brick barns, themselves, I forgot to ask.

The barns, as you can see from the pictures, are quite different from ours. They are one-story stables with no loft of any kind above the cattle. This open interior, together with sky-lights in the roof, makes them airy and light. They are not built for freezing temperatures, but they are built for centuries of use.

We walked through the stables and went into the dairy room. Here a fractional horse power motor drives both the cream separator and the butter churn. The latter is the familiar barrel churn. The term "butter churn" is used and emphasized because the metal containers for milk that we call cans are called "milk churns." As the picture shows, they do look like the old fashioned wooden dash churns. The common size seems to be 20-gallon, but we saw some larger. The milking machine was much like those used in this country. The outstanding appliance in this dairy, and the one that showed its superiority over most American farm dairies, was the electric water heater. Without soot, or smell, or the danger of fire this provides hot water at the barn for cleaning the milk utensils.

Feed Preparation

From the dairy we went around to one of the rooms where they prepare the feed. We were particularly impressed at Greater Felcourt, and on other English farms, by the amount of work that these farmers put on the feed for their live stock. They have all sorts of grinders, crushers, and kibblers for "corn," which means grain in general with them. In fact, we did not see a hill of corn in 2,500 miles of driving. In place of silage, they feed roots which are stored whole and have to be sliced or pulped when they are fed.

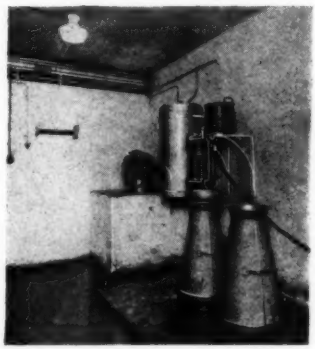
Instead of the various oil meals that farmers here use as protein supplements for home grown grains, they buy oil cakes just as they come from the presses of the oil mills. The cakes which are about one foot by three feet, and perhaps one and a quarter inches thick, are as hard as a board. That means that the English farmer must put them through a cake breaker before he can mix them with other ground feed for his cattle. Chaff cutters that we would call hay choppers are also common. All of these processes take a lot of work, but at Greater Felcourt electric motors furnish the power for these daily chores.

A Unique Portable Motor

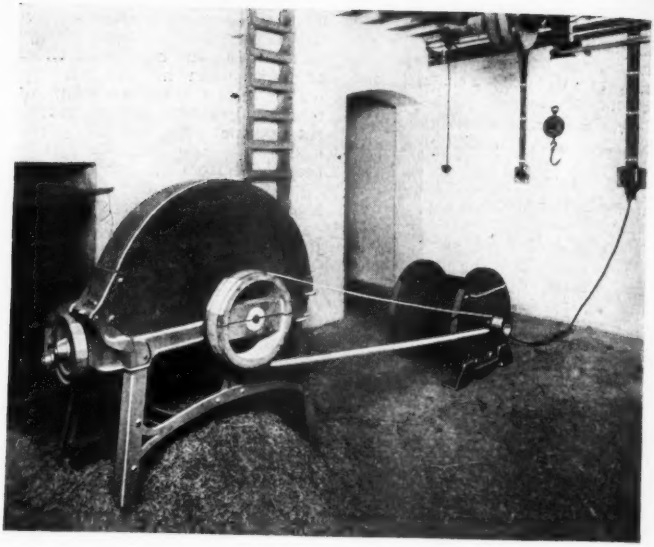
The first thing we saw when we went into the room was a brand new style of portable motor.

"This is the new Drumotor on our chaff cutter," said Mr. Edwards. "We are much interested in its development. The G. E. C. is making it in several sizes, but we find that 5 H.P. is about the right one for us."

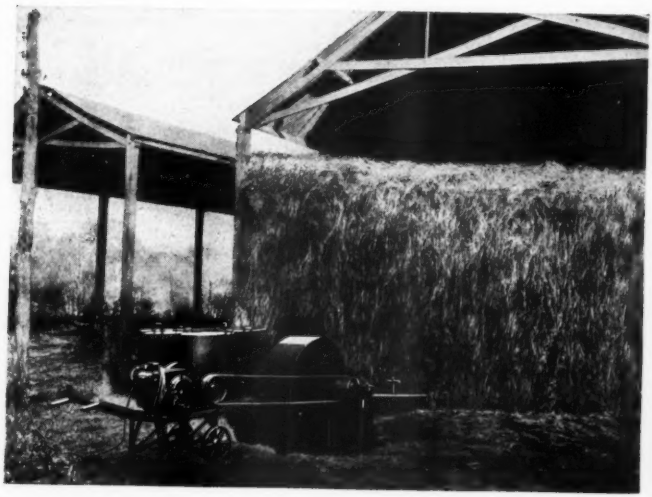
At first glance it looks like a



Milk churns and electric water heater in the dairy.



Five horse power "Drumotor" driving a chaff cutter.



Mr. Matthew's equipment for curing hay in the stack.

small spool or reel for cable. The motor itself is enclosed in a metal cylinder or drum. The ends of the drum are enough larger in diameter to form wheels on which the outfit can be rolled from one job to another. The connecting cord wraps neatly around the drum. If the end of the cord is plugged into an outlet and the motor is then rolled into position, it will unreel the necessary length and the rest will stay on the drum out of the way.

On the pulley end of the motor there is a pair of broad metal feet that fold up to let the motor roll, but support and brace it, when it is in use. On the other end there are push buttons for starting and stopping the motor just as there are on our American farm portables.

Power Grinding

We turned next to a combination buhr and roller mill that stood nearby.

"We use this mill so much that we think it best to have a motor permanently attached to it," said Mr. Edwards. "You see, this motor drives the grinder through gears instead of a belt."

"That makes a pretty compact unit," I said admiringly.

"And here is still another 5 H.P. motor in this root pulper," Mr. Edwards went on. "From the pictures I've seen, I should say that this truck is more like the ones you use in your country."

In general it was, but you can see by the picture that it has its differences. This same motor, he told us, they take out to the Dutch barn to drive the fan for curing hay. That brought us to one of the most spectacular uses they have made of electricity on this English farm.

We did not need to have Mr. Edwards tell us that curing hay with a stream of air is a project very close to Mr. Matthew's heart. His work has been going on for years and has received world-wide publicity. If you know anything about English weather, you understand why Mr. Matthews has tried so hard to make hay in spite of it. We make hay while the sun shines, but the Englishman, if we are to judge from the samples of weather we met last July, must make his hay under drizzling showers with only occasional patches of sunshine to dry it off.

Mr. Matthews' method seems very simple. He has set up a big blower at the end of his hay shed and by means of a Y has connected the discharge opening to two big square underground air ducts that extend the full length of the shed. These ducts are merely trenches with boards laid across them and the dirt placed on top to make them air tight. In each bay or bent that it crosses, each duct has an opening in the top through which air can be blown.

"I would like to know just how it works," I said as I walked about the shed studying the arrangement of the system.

"We cut the grass as usual," said Mr. Edwards, "and then if it looks like rain, we cart it immediately. In the place where we are going to put the hay, we uncover the openings in the air ducts and then we place one of these steel cylinders over each of them."

The steel cylinders he referred to are the tall cans at the left of the picture beyond the motor.

"Then we stack the hay around them," he went on. "As we build up the stack we keep pulling up the cylinders, so they form two big open chimneys or air chambers in each bent. When we get up high enough so the distance to the top of the finished stack will be about the same as the distance from the air chambers to the outside edges, we pull out these big cans altogether and cover the openings with some pieces of wood to keep the hay from falling down and filling the chimney. Then we go on and finish the stack. When the fan blows air through the underground ducts and up into these chambers, it comes out through the hay in all directions."

In writing about this method of

hay curing in his book *Electro-Farming,* Mr. Matthews advises running the fan for at least an hour within the first twenty-four hours after stacking begins.

"If the grass is very wet with rain," he says, "blowing must be commenced immediately after the stack is completed and continued for ten to fifteen hours. This allows the air an easy passage as the stack will not have consolidated and the surface moisture is more easily removed and all danger of mold eliminated.

"Temperature readings are then taken twice a day, and it is usually found that blowing is necessary for about half an hour to an hour every day for ten days to keep the temperature within proper limits.

". . . .The size of the fan required for a stack of from twenty-five to one hundred tons is one that will absorb the full power of a five horse power electric motor. . . The farmer who is working the new process is assured of a hay of uniform quality every year whatever the weather may be. . . . As there is no need to toss the hay in the field, the clover and other similar herbage is all conserved in the rick. In the ordinary way a great deal of this is lost in the tossing and carrying, as it becomes brittle, falls to the ground and is left in the field. . . . The author's practice in favorable weather is to cut in the morning and with the aid of the same men, stack in the afternoon.

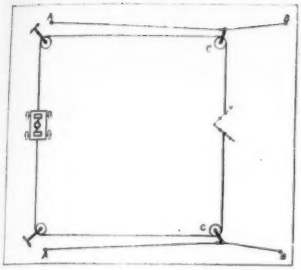
It was a matter of keen regret to me that I did not visit Greater Felcourt at a time when I could see this remarkable practice carried on.

Plowing With Electricity

We turned away from the Dutch barns which sheltered the hay and walked back to the farm shop. In an open space beside the shop Mr. Matthews has set up an electric plow. Knowing that field work takes nearly half of the power used on American farms and that plowing may become the most important use of electricity in agriculture, we were keenly interested in seeing it.

It was raining a little harder now, so Mr. Edwards and my wife sought shelter in the shop

Typical English barns at Greater Felcourt.



This is the layout for electric plowing.

while I took pictures in a steady downpour.

This plow is entirely different from our tractor plows; the motor stays in one spot and pulls the plow back and forth across the field instead of going with it. The method is not new; several European countries have used it with steam power for many years. But Mr. Matthews has put a 12 H.P. motor on the job. Since the motor is stationary, he needs current at only one point in the field; this is generally about the middle of one side.

There are two drums for the hauling cable, and the motor operates first one and then the other. Along both ends of the field, and at right angles to the direction the plow will travel, two anchor cables A, B, are securely staked out. Moveable anchor pulleys C, are clamped to these cables. At the corners of the field nearest the motor stationary anchor pulleys are set.

The cables from the hauling drums are each run through a stationary pulley and a moveable pulley and fastened to the plow on opposite ends.

The plow itself is a right hand gang and a left hand gang fastened together facing each other. Each gang has two bottoms. The beams are fastened together at such an angle that when one gang is working, the other is tilted up out of the way. When the plow starts the other way, this latter pair of bottoms enters the ground and the opposing gang is hoisted into the air.

Every time the plow comes to the end of the furrow, the plowman unclamps the moveable anchor pulley and moves it along its cable far enough to be in line for the next pull. Then the man in charge of the motor reverses the drums and starts the plow back.

It was dusk when we got in our car to go. A workman leaving the barn, pushed a button that lighted a lamp hanging above the drive. He started away toward a row of neat brick cottages we had noticed as we drove in.

"He's going home for the night," said Mr. Edwards.

"But he's forgotten the light," I said.

"Oh no, he can't forget that light," he smiled. "It will give him time to get home, but it turns itself out at the end of three minutes."

And it did. We looked back as we turned from the lane into the road to London. The light was still shining. Then while we looked, it went out and the farm yard lay in darkness, but in all the little cottages friendly lights shone out. The workmen at Greater Felcourt were having their tea.

The electric plow shown at Greater Felcourt. The power unit is in the background.

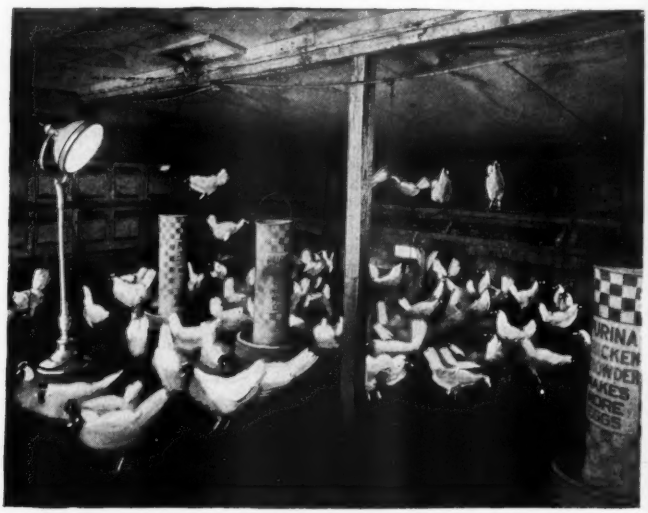
Ultra Violet
Light Makes -

BIGGER AND BETTER POULTRY

RECENT tests show that the growth of poultry submitted to ultra-violet radiations is actually faster than the growth of similar birds fed with vitamin-conaining foods. Four cockerels from the same hatching illustrate the average results. Two were given short ultra-violet radiations every day from the date of hatching, and were fed on a normal mixture, but with no special vitamin-containing oils or additions. The other two birds received no ultra-violet but were given the same amount of identical food, except that cod liver oil was mixed therein.

At the end of six weeks, the two birds receiving ultra-violet were almost twice the size of the others. The larger ones at the end of six weeks weighed 20 ounces, while the smaller ones weighed only 11 ounces each.

Since one ultra-violet lamp usually suffices to irradiate at least 100 birds and the cost of burning is only in the neighborhood of 12 cents an hour, it seems evident



Portable Ultra Violet Light Doing Service in Hen House.

Interesting Results

Four cockerels from the same hatching, two of which were subjected to ultra-violet radiations for one hour each day from date of hatching and fed on normal mixtures. The other two were not given ultra-violet light treatments but were fed on food containing a percentage of cod liver oil. At the end of six weeks, according to Dr. Harvey C. Rentschler, the birds receiving the ultra-violet light were almost twice the size of the other two, weighing 20 ounces, as compared with 11 ounces each.

that this method will be very popular among poultry raisers. The use of these ultra-violet radiations of the carefully selected and proper wave length indicates the possibility of raising broilers for the market in a much shorter period. These ultra-violet radiations were produced by a Mazda Type S-1 Sunlight lamp.

Another property of the ultra-violet light was exhibited when an apparently empty glass bulb was held under the rays of an ultra-violet light producing lamp. This bulb exploded with a loud report. This was the result of the photo-chemical reactions brought about by the ultra-violet wave length. The bulb contained a mixture of hydrogen and chlorine gases, and in the dark, or under ordinary light, no reaction takes place between the gases, but the moment they are exposed to ultra-violet rays, the hydrogen and chlorine combine to form hydro-cholic acid, and the reaction takes place with an explosive violence.

The bulb containing the gases was made of special glass permeable to ultra-violet light.

A third experiment was to write a few words on a blank sheet of paper with a colorless oil. Under ordinary light, this writing was invisible, but the moment it was exposed to the ultra-violet rays, the words stood out as though written in a purplish flame.

Don't Condemn Your Pump Without Knowing Your Well

By E. W. Lehmann

THE man who sells pumping equipment and the man who buys a water system should know wells. A reduced discharge from a water system may be due to the supply diminishing or it may be due to some restriction of the water getting into the suction pipe. Where the suction pipe is provided with a strainer it may be clogged, or if it is a driven well the screen point may be stopped up. During the past season of low rainfalls many wells have given trouble due to the water standing at a lower level than formerly.

Pump Not Defective

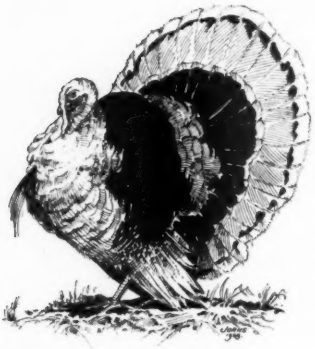
Twice during the past eight years I have had a driven well apparently dry up when the real trouble was a clogged screen point. The first time it occurred, we noted that the pump was not discharging equal to its rated capacity and placed the blame on the operation of the pump. To test the pump it was disconnected from the well and connected to a cistern; it was then found that the pump was working satisfactorily.

By the use of a block and tackle and a crossframe arranged above

(*Continued on page 38*)

ELECTRICAL HOUSEKEEPING

Conducted by
GAIL MEREDITH



Thanksgiving Trimmings

IF this is the year the folks are coming to your house for Thanksgiving, you may be eager to think up some new way of serving the dear familiar foods that every family clings to for its own feast days.

Here are two simple garnishes for fowl that will make your most critical in-law break into babbling admiration.

Slice whole oranges, skin and all, in crosswise slices about a quarter of an inch thick. Put a spoonful of current jelly on each slice and lay the slices around the edge of the platter.

This is particularly good with duck.

For the turkey, use a ring of colored apples. Have you ever made them? They are quite simple and very, very attractive. Peel and core your apples. Make a sugar syrup in the proportion of one to one; one cup sugar and one cup of water. Pour half of the syrup into a second pan and color one part red, and the other green with ordinary vegetable colorings. Cook the whole apples carefully in the syrups. When you are ready to serve the turkey, put the apples on the edge of the platter, alternating the red ones with the green.

Here is a new way to serve the sweet potatoes, too. Boil them, mash and season them. Then pile enough for each serving in half an orange skin and put them all in the oven to keep warm. Just before you are ready to serve them put a marshmallow on top of each one and let it brown. These make an effective trimming for the turkey platter, but they are apt to get mussed up in the carving, so it is probably quite as well to put them on a small platter or a chop plate by themselves.

If you have an electric refrigerator, you can serve the cranberry sauce as an ice this year.

2 cups water
1½ cups sugar
1 quart cranberries

Make a syrup by boiling water and sugar together for five minutes. Boil cranberries and one-half cup of water until they are soft. Press through sieve. Add to the syrup, cool and freeze.

• • •

Cooks and Cookies

"Oh little mothers, rolling dough,
Don't you wish that food would grow?
How happy all the world would be,
With a cookie bush, and a doughnut tree."

WINIFRED CARTER.

BUT search as we will in all the gardens of the world, we never, never can find either one. Doughnuts must still be dropped into sizzling fat on our kitchen stoves, and cookies must still be mixed and rolled and baked. But even though no Burbank has ever succeeded in making fairy tale sugar plum trees become real, I do not believe there is any particular reason to pull down the corners of our mouth about it. When it comes right down to it, I believe

most of us rather like to bake cookies anyway.

Besides, making cookies, like so many other things in this business of keeping house, isn't the job it used to be at all. Motor driven mixers will cream the butter and sugar together, beat the eggs in, and mix the whole together while we stand by and pour in milk with one hand and flour with the other.

Baking them in the oven of an electric range is a far different matter from keeping up a brisk fire in an old wood stove to bake a couple of hundred cookies. In the first place the ovens of most of the electric ranges are at table, or just below table height. To measure the advantage of that, you have only to think back to the day you pulled a sheet of cookies out of the oven of your range, and, as you were rising to your feet, stepped back on a kiddy car that slithered out from under you, and left you waving a hot tin of molasses cookies aloft in a frantic effort to regain your balance. Or you can consider the decreased mortality in silk stockings, with decreased

kneeling and stooping to look into the oven. Or you can just think, "It's more convenient up there," for, after all, the advantage is obvious.

The success of a cookie lies pretty largely in the baking. That is what used to make getting and keeping the fire just right such a

(*Continued on page 24*)

The mixer will stir up a batch of cookies while your hands are doing something else.

WASH DAYS BOTH FA

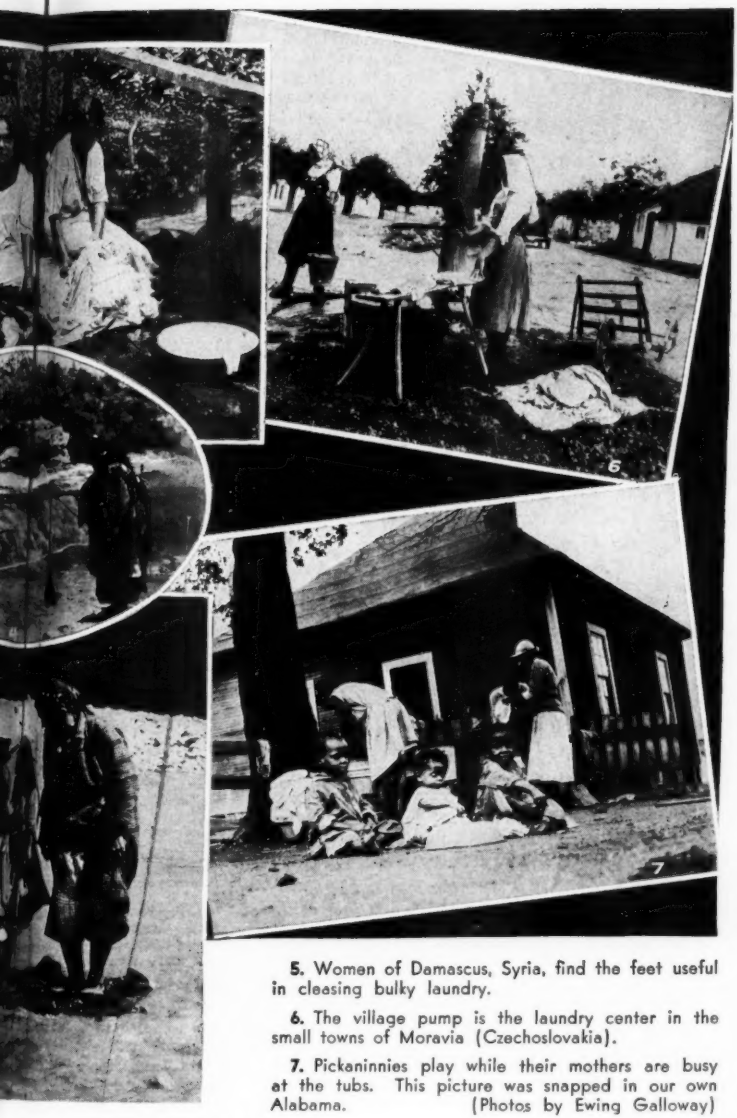
1. Public laundry in Colombo, Ceylon. Note masonry tubs.

2. Another public wash place; this one is at Luxembourg, Belgium.

3. South Sea Islanders beat the dirt out of their laundry. The stream and the bridge lend aid.

4. Maori housewives (New Zealand) use hot sulphur springs to wash and bleach white garments.

OTH FAR AND NEAR



5. Women of Damascus, Syria, find the feet useful in cleasing bulky laundry.

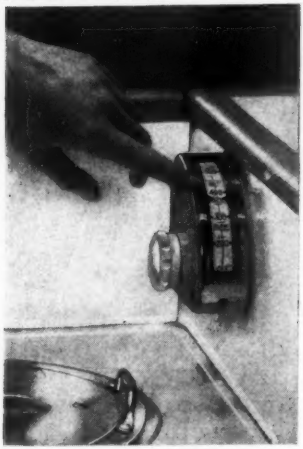
6. The village pump is the laundry center in the small towns of Moravia (Czechoslovakia).

7. Pickaninnies play while their mothers are busy at the tubs. This picture was snapped in our own Alabama. (Photos by Ewing Galloway)

Cooks and Cookies

(*Continued from page* 21)

portentious ordeal. Nowadays recipes have "make in 375° oven" or "bake at 400°" tacked on at the end. And electric ovens have temperature regulators that will keep the oven at 375° or 400° throughout the baking period. All you have to do is set the regulator at the right place and turn the switches on. Some stoves have a little red light that stays on as long as the current is on in the oven. When a monitory click calls your attention to the stove, you see that the light has gone off, and you know that the temperature of the oven is up to 375°. Then you turn off the top burner, and begin baking.



"Bake at 400°"

If you have been following modern trends in baking, you use aluminum cookie sheets, because the bright metal reflects the heat better than dark metal does, and the flat surface lets the cookies bake more quickly and evenly than they did in the old high sided dripping pans. The size of this sheet depends on your own oven; there should be a space of at least an inch all around it for a free circulation of air throughout the oven. Otherwise your cookies will not brown on top.

I usually bake one sheet of cookies at a time, but Miss Ruth Chambers, who has charge of the experimental kitchen of one of the big stove companies, has worked out a practical scheme for getting the baking done more quickly. She says:

"Arrange the wire racks so that the oven is divided into thirds and place the first cookie sheet on the bottom rock. At the end of five minutes set these partially baked cookies on the top rock and place the second sheet on the lower rack. When the cookies on the top are browned, remove them and set the lower sheet up above. Three cookie sheets speed up the work and save fuel as the oven is always full."

Miss Chambers has two new cookie recipes that are very popular at our house. One is a big, soft sugar cookie that stays soft a long time.

Sugar Cookies

1 c. butter
2 c. sugar
1 c. sweet cream
4 eggs
1 tsp. soda
2 tsp. lemon extract
½ tsp. salt
5 c. flour
3 tsp. cream of tartar

Cream butter, add sugar and cream thoroughly. Add the eggs and beat till smooth. Alternately add the cream and the sifted dry ingredients. The dough will be very soft so should be put in the refrigerator for a few hours. Roll ¼ inch thick. Cut out. Sprinkle generously with sugar after the cookies are on the baking sheet. Bake at 425°.

The other makes oatmeal drop cookies that my husband says are the best oatmeal cookies made.

1 c. sugar
2 c. flour (sifted)
2/3 c. shortening
½ c. sour milk
2 eggs
2 c. rolled oats
1 tsp. lemon
½ tsp. soda
1 tsp. baking powder
1 tsp. cinnamon
¼ tsp. cloves
¼ tsp. nutmeg
1 c. raisins and currants
1 c. nuts

Cream shortening and sugar, add well beaten eggs, milk, extract and oatmeal. Mix and sift flour, soda, baking powder and spices. Combine mixtures. Chop fruit and nuts, flour well and add. Drop from

spoon on greased pans. Bake at 400°.

This recipe for sugar cookies I cut out of a Sunday paper. It makes cookies of quite a different texture than the others. But, they, too, are delicious.

White Cookies

2 c. sugar	1 tsp. soda
1 c. shortening	1 tsp. salt
½ c. thick sour milk	1 tsp. vanilla
2 eggs	1 tsp. lemon

5 c. flour

Cream shortening and sugar. Add eggs well beaten. Put the soda in the sour milk, and add alternately with flour. Add salt and extract. Bake in 400° oven.

This last recipe came in the top of a sack of flour. I make these cookies often.

Soft Molasses Cookies

1¼ c. shortening	1 tsp. allspice
1 c. sugar	1 tsp. ginger
6 c. flour	1 tsp. cinnamon
2 tsp. soda	1 c. dark molasses
1 tsp. salt	1 c. cold coffee

Cream the shortening well and add the sugar gradually. Sift flour once before measuring. Then sift together flour, soda, salt, allspice, ginger and cinnamon. Mix the coffee and molasses. Add these to the creamed mixture, alternating the liquid and the flour mixtures. Roll out the dough ¼ inch thick. Bake the cookies about 15 minutes in a 400° oven.

• • •

The Heating Pad

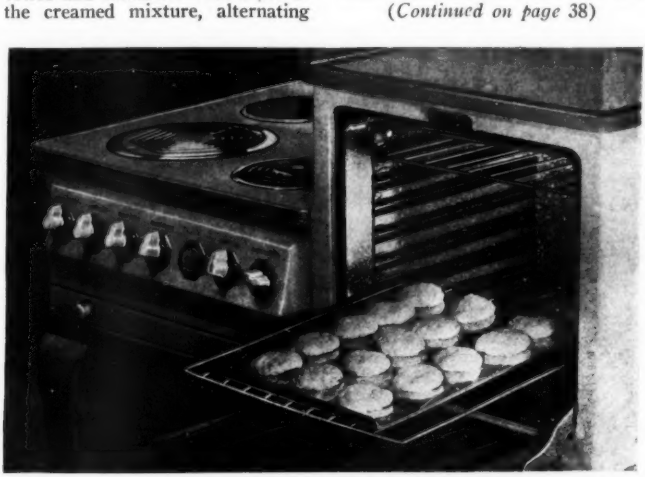
LAST year I sent my aunt a nice fleecy heating pad for Christmas. She minds the cold a lot, and as far back as a can remember winter nights have found her heating up soapstones or tucking a hot water bottle down at the foot of the bed to warm the sheets.

I picked out a rose colored pad as soft as thistledown, and I took a good deal of pleasure in the thought of the comfort she would be getting all the rest of the winter. Her letter acknowledging the gift came late; she had been unusually busy during the holidays. I tore it open and read:

"Thank you so much for the lovely pad. It looks beautiful. So far none of us has been sick, so we haven't had a chance to use it, but we surely will before the winter is over."

I sat right down that very minute to urge her not to wait till some one was sick, but to pull that

(*Continued on page* 38)



The cookie sheet leaves a space all round so the air can circulate freely.

ON THE AIR

Conducted by
JEROME J. HENRY

New Crop of Programs on Air

AUTUMN ordinarily means more leisure for country folk—but not for radio artists.

When the corn is in the shock, silos are filled, and occasional afternoons lend an opportunity to oil up the old shotgun and go out after cottontails or upland game birds, the fall crop of radio programs begins to swell the opportunities for enjoyable entertainment.

The months of Autumn will find radio listeners tuning in on a number of new broadcasts—both commercial and not sponsored. Walter Damrosch's Music Appreciation Hour is in full swing, and grown people are finding in it as much enjoyment as school children; a variety of commercial radio shows, ranging from popular dance hours to dramatic episodes and operatic presentations are in their early weeks of a winter's radio run; and stations all over the country are presenting play by play descriptions of college football. There are also the fall programs of agricultural college broadcasting stations, special broadcasts of farm events such as the National Cornhusking contest from Grundy Center, Iowa, over a nation-wide network, and the coming edition of the International Livestock exposition.

All in all, the fall and winter promises an unprecedented abundance and variety of high quality radio entertainment and information.

• • •

Radio Stars Receive Varied Gifts

Radio listeners make their presents known.

Gifts from the "great unseen audience" of the Columbia Broadcasting system range from bananas to money, from monkeys to elephants, although it must be explained that the latter are only miniatures carved from ivory.

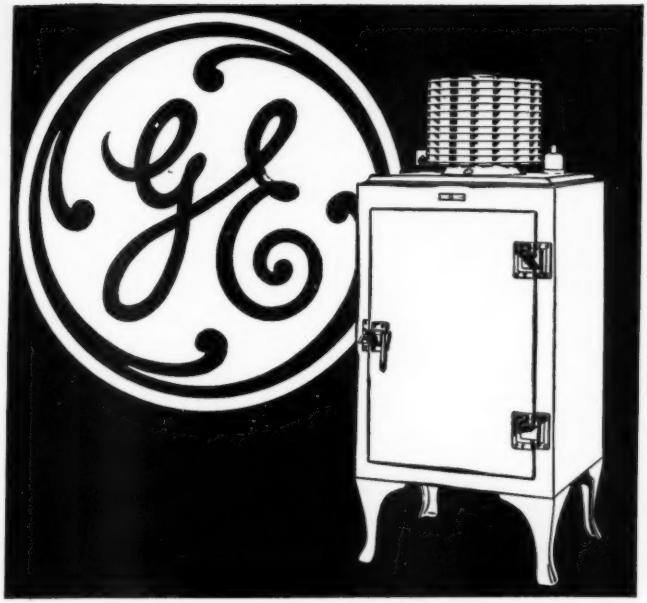
The gifts are not always expressions of appreciation. There was one speaker, for instance, whose trembling voice indicated a bad case of "microphobia." In a mail he received a pair of plush slippers with the advice that "you wear these to keep your feet warm the next time you broadcast."

Fruit and candy are the most common gifts. The mail department is often tempted when boxes of oranges, fruits, and confections arrive for the artists.

Bradford Brown was at one time the recipient of a series of ten dollar bills sent by a listener who signed only his initials and gave no return address. The donor continued the pleasant practice for several months then the procedure ceased as unceremoniously as it began.

At intervals flowers are sent. Vincent Sorey, a violinist, received a pair of monkeys from a Long Island listener three years ago and

Radio Fans Make Their "Presents" Known.



A MARK WHICH MEANS MUCH TO FARMERS

THE mark "G. E."—General Electric symbol—stands for *quality* in things electrical. Farmers rightly insist on the best machinery and home equipment. Far from points of service, their appliances must be free from service trouble, efficient, dependable. That's the reason the General Electric Refrigerator enjoys ever-increasing popularity among rural folk as well as city residents. For the General Electric is trouble-free, attention-free, expense-free. With its current-saving mechanism sealed in the steel-encased Monitor Top —sealed against dust, air, moisture—it runs on through the years. Now, with a 3-year guarantee... low prices... easy terms, a General Electric Refrigerator is a profitable investment. Eliminates waste. Preserves foods. Provides menu variety. Inspect the many models at your dealer's today. Or write Section CZ11, General Electric Company, Electric Refrigeration Department, Hanna Bldg., Cleveland, Ohio.

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR

Domestic, Apartment House and Commercial Refrigerators, Electric Water Coolers and Milk Coolers

just recently paid a boy a dollar to take them away from him.

Canes and batons have been received by Guy Lombardo, and several barrels of apples have been sent to Morton Downey. When the Nit Wits were on the air they used "Yes, We Have No Bananas" as their theme song. They received many large bunches of the tropical fruit.

• • •

Uniform Tuning Gives Best Results

Turning the volume up and down on a radio set may be compared to jerking an automobile accelerator. Neither gives best results.

Most satisfactory radio reception and tone may be obtained by turning the volume just high enough to insure the reception of the full range of musical instruments without having the set tuned objectionably loud.

Broadcasters in the studios take care of presenting the program and instruments as desired, so no attempt should be made at controlling the orchestra with the volume dial.

It is interesting to note that, in the broadcasting studio, endless care is devoted to placing microphones at exactly the right distances from each musical instrument to obtain perfect balance, reality, and blending of tones. The result is that a receiving set reproduces the music with a reality that cannot be improved upon by "sitting with a hand on the dial."

• • •

Homesteaders Believe In Spontaneity

Harry Kogen, director of the Homesteaders orchestra which is a daily feaure of the National Farm and Home Hour believes in spontaneity for radio programs.

The Farm and Home Hour doesn't mean only some more "music making" to the Homesteaders, but a sincerity in their desire to delight country folk whom they feel they have learned to know during their many months of broadcasting.

"I can almost see our farm friends," says Harry, "so we don't plan our musical programs long days and months ahead, but play whatever numbers it seems are most enjoyable at the moment."

Oh me! Amos must be taking a "memolandum" from Andy.

The programs sparkle with spontaneity, and all those listening in seem just as real to the group of musicians as if they were sitting right in the studio.

• • •

Electric Sets Best; Others Improve

Farmers living in electrically equipped homes are indeed fortunate when it comes to radio reception. To them the most satisfactory receiving sets are available, sets that are almost trouble free through years of service and whose installation is as simple as turning on a light switch.

The cost of operating the set for an average of five or six hours daily is negligible, and current costs are rarely augmented by repairs in this day of pleasing radio service, although manufacturers recommend the replacement of tubes about every year to assure perfect tone and volume.

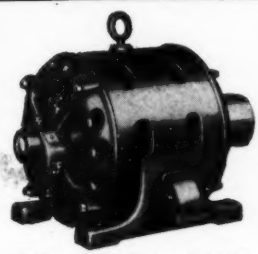
• • •

Rural Listeners Prefer Best in Music

Country folk prefer the better kinds of music in radio programs, according to Frank E. Mullen, director of agriculture for NBC, and a pioneer in agricultural broadcasting.

Mullen, who began his radio ex-

Clara, Lu, and Em, purveyors of gossip on subjects ranging from presidential elections and international affairs to how to keep from burning the toast, over an NBC network nightly at 9:30 p.m. C. S. T.



5 Horse Power Century Type RS Repulsion Start Induction Single Phase Motor

"Take It Easy" On Hard Jobs

Save a lot of hard, heavy work by using Century Motors—for driving wood saws, tool sharpeners, corn shellers, feed grinders, pumps and other jobs that take up a lot of time both winter and summer.

For 27 years Century Single Phase Motors have been proving they can work for you cheaply and economically, and "Keep a-Running" with little or no attention.

Built in sizes from ⅛ to 40 H. P.

CENTURY ELECTRIC CO.
1806 Pine St. St. Louis, Mo.

Century MOTORS

Morton Downey, Kate Smith, and Bing Crosby, all feature singers in nightly programs, Downey's tenor, Kate's soprano, and Crosby's baritone contribute much to each evening's radio entertainment.

perience in the early days of KDKA in Pittsburgh, has studied the reactions of farm listeners for several years, and has found that in a great majority of instances, the best types of music including the classics and old favorites are preferred in rural homes.

This and other direct studies of listener reactions are helping broadcasters to present the best particular type of entertainment for each program.

• • •

Employ Sign Language in Studios

Sign language is not a curiosity in broadcasting studios. Announcers and production men have developed a system of signals employing arms and hands for convenience and accuracy. These signals are usually made through a double plate observation glass which separates the control room from the studio.

When the production man holds his index finger against his nose, there really is nothing wrong with that organ. It means the broadcast has been ended exactly on time or "on the nose."

An upraised arm brought swiftly down means the broadcast is to begin on the second—when the performer wanders too far from the microphone he's brought back when the production expert holds one hand steady and draws the other toward it—describing swift circles with the hand denotes a necessity for increasing the orchestra's tempo—and X formed with the arms means a quick fadeout while a slow fadeout is indicated by holding both hands flat and moving them slowly to and fro.

• • •

Studio Chatter

The Sisters of the Skillet have solved one serious problem at last. They suggested to movie managers that theatres be equipped with barber chairs and pictures projected on the ceiling so everyone could see. The result—Wave Crest convalescent hospital at Far Rockaway, Long Island, is to project motion pictures on the ceiling for the enjoyment of bed-stricken children.

Julia Sanderson won't have goldfish around her home.

Eddie Cantor, radio and screen comedian, defines prosperity as the time before election; Reno, where "liberty bonds" are purchased; and "millionnaire," one who eats three times a day.

Mrs. Helen Stevens Fisher, the "Little Lady of the House," who is in charge of many household programs and broadcasts pertaining to children.

Bruce Kamman, National Farm and Home Hour production man, in his dialect dialogues with Johnny Wolf, has no trouble turning from an Irishman into either an Englishman or German.

Radio followers have a heart. Many responded to a recent talk on children with requests for poor children to care for through the winter.

Al Cameron, of Al and Pete, harmony duo, checks up on wet paint signs by finding out for himself.

Floyd Gibbons, for his efforts in a forest fire, was made an honorary member of the Yellowstone National Park Rangers.

Vincent Lopez was once an actor in musical comedy.

Phillips Lord, the Seth Parker of radio, will establish a home for his family in Jonesport, Maine.

Jane Froman always sings on the left side of the microphone.

Only two songs have been repeated in 175 broadcasts of Miracles of Magnolia.

Wally Butterworth enjoys announcing the corn-husking contest probably more than any other show, and asked if he was going to Venice on his European tour next winter, Paul Whiteman replied, "No, last time I was there the whole town was flooded."

• • •

Many Important Farm Radio Programs

National farm organizations, leading agricultural events, informational messages, and farm news feature broadcasts of particular interest to country folk this month.

During November and December there will be direct broadcasts over an NBC nation-wide network from the National Corn-husking contest, Nov. 13; International Livestock exposition, Nov. 30-Dec. 5, and National Grange convention.

Highlights of farm radio programs include:

Nov. 14: Dramatization by American Farm Bureau Federation.

Nov. 18: Farmers' Educational and Cooperative Union.

Nov. 21: National Grange program.

(*Continued on page* 33)

Cullman *Electric* PUMP DRIVE

**Compact—
Well Built—
Safe**

Motor and mechanism completely enclosed and take little space.

Gears and sprockets accurately machined and only the best motors supplied.

Cover protects driving mechanism from dirt and weather.

Cullman Automatic Control added if desired.

Complete information on request.

CULLMAN WHEEL CO.
1342 Altgeld St., Chicago, Ill.

THE HANDIEST LIGHT IN THE WORLD

Use it anywhere

Unlike all others. You can stand it on desk or table, clamp it on back of chair or bed, or hang it as wall fixture near shaving mirror or dresser. Ideal for lighting dark corners in closets, workshop, storage room or creamery. The neck bends and shade tilts to throw light where you want it. A beautiful lamp made of heavy gauge brass and finished in either statuary bronze or a soft pastel green. Equipped with extra long (9-foot) silk cord and split plug. Priced from $2.00 to $3.50. Get a Buss Light at your local store or write Bussman Mfg. Co., 2524 University St., St. Louis, Mo.

A STAND LAMP THAT HANGS ON WALL OR CLAMPS ON ANYTHING

BUSS Light

Questions and Answers

Conducted by H. J. GALLAGHER
Agricultural Engineering Dept.
Michigan State College

Question No. 1: *I am interested to know whether a 5 or 10 H.P. motor can be installed on a stove circuit in order to get the cheap rate per kilowatt hour that is accorded to users of electric ranges. Please advise me also how much electric energy will be consumed by a 5 or 10 H.P. motor when operated at capacity. Is there any difference in the amount of K.W.H. consumed when 110 or 120 volt current is used in motors of the same horsepower?*

Ralph M. Musser,
Frankford, West Va.

Answer: I am not familiar with the rates of your power company or the basis on which their rate is determined. As a general rule the users of electric ranges enjoy a cheaper rate because of the amount of current they use, the same amount of current used in other ways would result in the same cheaper rate.

Under the rate schedules of many power companies the size of the transformer is a determining factor in the operation of electric ranges and larger motors. A5 K.V.A. transformer is large enough to operate an electric range and 5 H.P. motor. A 10 H.P. motor requires a larger transformer which usually results in a higher operating cost. A 5 H.P. motor developing 5 H.P. uses energy at the rate of approximately 5,000 watts or 5 kilowatts per hour. A 10 H.P. motor developing 10 H.P. uses approximately 10,000 watts or 10 kilowatts per hour. One horsepower equals 746 watts but under actual operating practice it requires an average of approximately 1,000 watts per horsepower.

Motors on 110 or 120 volt service use the same amount of energy. The advantage of 120 volt pressure is the reduced amperage on 120 volt service and a greater protection against too low voltage.

Question No. 2: *I have a R. C. A. 32 volt Delco system and have an R.C.A. AC radio that I would like to use on this current if possible.*

Ivan C. Owens,
Ivan, West Va.

Answer: To change an AC radio to a DC radio is practically the same as building a new DC unit. At the present prices of good radio it would be better to purchase a new DC set. Possibly you may be able to trade your AC set to good advantage.

Question No. 3: *Two No. 10 solid copper wires would have the same carrying capacity as what size single wire?*

E. A. Jordan,
Eureka Springs, Ark.

Answer: The current carrying capacity of copper wire is as follows:

Wire Size B & S Gauge	Rubber Covered (Amperes)	Weather-proof (Amperes)
10	25	30
6	50	70

One No. 6 wire has the same carrying capacity as two No. 10 wires.

Question No. 4: *I am considering the purchase of a farm and wish to obtain an idea of what the monthly cost would be with full electrical equipment. The house would contain six rooms with the usual lights and in addition I plan to have the following: Electric range (four burners and oven) washing machine and ironer, re-*

frigerator (one of the smaller sizes) mixing machine, ventilating fan in kitchen, radio (eight tubes), iron, vacuum cleaner, toaster, Telechron clock and an electric water pump with pressure tank. Also I plan to have an oil burning furnace which I am told uses an electric blower.

I believe the rate in the locality considered is four cents per kilowatt hour and I am anxious for this estimate to determine how far I can locate from already established electric service.

Glen McKittrich,
New York City.

Average Monthly Consumption in Kilowatt Hours

	K.W.H.
6 rooms	30
Electric range, 4 people	140
Washing machine	6
Refrigerator	45
Mixer	2
Kitchen ventilating fan	8
Radio, 60 hours	3
Iron	10
Vacuum cleaner	5
Toaster	4
Clock	2
Pump	30
Electric blower for oil furnace per month	15
	300

Energy at four cents per K.W.H. would equal $12.00.

Radio Programs

(*Continued from page* 31)

Nov. 28: Land Grant College and University program with United States Army Band.

Dec. 5: National 4-H Club program with United States Marine Band.

Dec. 12: American Farm Bureau Federation.

Dec. 14: Future Farmers of America program.

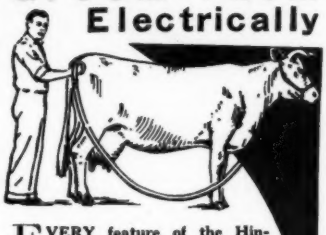
All of the above programs will be broadcast in the National Farm and Home Hour 11:30 a.m. to 12:30 p.m., C. S. T. over a coast to coast network.

A Dirty Dig

"Mommer, what becomes of an automobile when it gets too old to run any more?"

"Why, somebody sells it to your Pa, dearie, for a used car as good as new."

Groom Them Electrically



EVERY feature of the Hinman Groomer has been developed from the standpoint of the modern dairyman. Light in weight, portable and durable, its powerful suction gives speedy, thorough, sanitary grooming. Operates from any 110 volt light socket; runs 1,000 hours without lubricating. Send today for illustrated folder and free demonstration offer.

HINMAN MILKING MACHINE CO., Inc.
Dept. E Oneida, N. Y.

HINMAN GROOMER

Your Family Needs this Protection

The septic tank alone is NOT a sewage disposal system. Nor will the addition of make-shift drainage give you the protection you should have. Only by combining a properly designed septic tank with adequate drainage can you be sure of safe, dependable service.

The San-Equip Sewage Disposal System is a complete system. All the waste from bathrooms and kitchen are properly disposed. The San-Equip System is "Certified." Yet San-Equip costs no more than you pay for cheaply-built, inefficient disposal.

Be safe! Send for complete information to San-Equip Inc., 7811 East Brighton Ave., Syracuse, New York.

San-Equip
CERTIFIED SEWAGE DISPOSAL

A Fuseless Farm

By B. W. Faber*

IN the February isue of ELECTRICITY ON THE FARM Gail Meridith pointed out that "a fuse always blows at the wrong time." Farther on the article continues, "To make sure that we would not ask for more electricity than the electric wires can carry with safety, engineers invented the fuse plug."

This invention took place many years ago, and engineers have now come forward with a new device for protecting wiring circuits, called a "flipon." This is a new name coined from the fact that with this new invention the circuit can be restored as simply as one can "flip on" a wall switch.

Differ in Design

The new "flipons" are entirely different in design and operation from fuses. For instance when a fuse blows it must be replaced with a new fuse. With the "flipon" it is only necessary to operate the handle to restore the circuit, an operation that is very simple, and no danger whatsoever is involved since there are no exposed live parts. In a fuse the heat due to overload causes a piece of metal to melt, whereas in this new device the same heat causes a strip of metal to curl and thus releases a mechanism to open the overloaded circuit.

A group of flipons mounted conveniently in a farm kitchen, so that the housewife can quickly and easily restore service.

Likes the New Flipon

About a year ago this new protection was installed on the J. L. Baur farm at Jeannette, Pa. When Mr. Baur was asked why he liked this type of protection, he replied.

"In busy times the women folks do considerable of the work in the dairy since the men folks are busy in the field. It used to be that whenever a fuse blew it was necessary for one of us to come to the house to locate which fuse had blown and insert a new one. The women folks haven't bothered us the past year, since they feel perfectly free and safe in flipping the circuit back in.

"Then too, there was always the problem of not having extra fuses of the right size around, and there was a big temptation to install larger fuses, or even to place pennies in the circuit. At one time I burned out some of my wiring because a penny had been put in—and forgotten. Fortunately no other damage resulted.

"And the funny part of the whole thing to me is that the flipons do not trip very often."

Affords Adequate Protection

That the circuits do not trip out very often is natural. Electric wires will carry an overload for a short time without becoming dangerously heated, and the new device will allow a circuit to be overloaded momentarily. Thus when a motor starts it momentarily draws a lot of electricity. The flipon does not open under these conditions because the wiring can safely carry the load for a short time. If the overload continues the circuit will trip long before the wiring becomes hot.

*Rural Electrification Engineer, Westinghouse Electric and Manufacturing Company.

Clean Seeds and a Clean Field

NO ONE knowingly pollutes his own well but there are still thousands of farmers seemingly but little concerned at sowing noxious weed seeds on their fields. Just as it is easier to screen out flies and mosquitoes than to keep the swatter busy, farmers find it more profitable to re-clean their seeds than to spend many anxious hours trying to kill weeds already introduced. Destroying the enemy beyond the front line has always been found to be more efficient than inviting him into the trench for a hand-to-hand conflict.

Harvesting Made Difficult

Harvesting a weedy crop of wheat or oats has always required more labor and expense but with the more general use of the combine the handicap imposed by weeds has been even more noticeable. With a wet season last spring, the weeds got an extra fine start and in many sections the use of the windrower was necessary.

The combination screen shaker and wind fanning mill, which is used largely for oats and barley will often pay for itself in a single season because of the larger yields made possible by the elimination of light grains and weed seeds.

Wheat farmers, who are receiving increasing penalties each year from dockage and lower yields, will find this practice of foremost importance in their war against weeds. They may choose one of the newer disc separators or a cleaner of the aspirator type. The former is made up of a number of flat discs which have pockets for different weed seeds and foreign grains but not for wheat. Portable machines of this type are also used in connection with threshing machines. The aspirator type of recleaner operates by allowing a thin film of grain to fall in front of a wind blast which separates the heavy wheat from the lighter kernels and other dockage.

Marvelous New Animal Clipper

With Universal Motor for 110-120 Volt

$18.50

with built-on Aluminum Handle $19.50

For 6-Volt auto battery and other special voltages slightly more

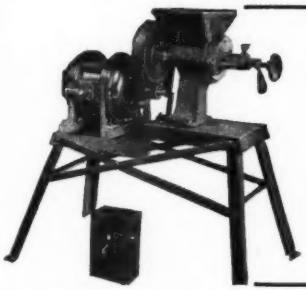
Clips Cows, Horses and Dogs

STEWART CLIPMASTER

Just plug in the long rubber covered cord with unbreakable rubber plug in any light socket, and clip twice as quick as ever before. Perfect balance, easy grip in any position. Marvelous motor; great reserve power. Satisfaction or your money back guaranteed by world's oldest established and largest maker of clipping and shearing machines. At your dealer or sent direct $2.00 with order, balance on arrival.

Get complete catalog describing this and other models of the world's greatest line of clipping and shearing machines. Chicago Flexible Shaft Company, 5524 Roosevelt Road, Chicago, Illinois.

Satisfaction or Your Money Back



BELL FEED GRINDERS

For Operation by Electric Motor

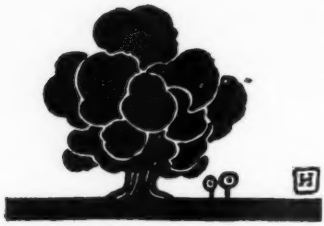
Over Seventy Years' Experience, built into Bell feed and food grinders, insures lower first and operating costs than others of equal capacity.

For all grains. For 1/6 to 25 H.P. motors.

Our prices are on a par with your grain. Your power company has our prices, or write us for catalogue and prices, naming your power company.

1858 **THE C. S. BELL CO.** 1931

McDowell St., Hillsboro, Ohio



Under The CHESTNUT TREE

There's a Difference

Patient: "Gee, but I'm thirsty."
Nurse: "Wait, I'll get you some water."
Patient: "I said I'm thirsty, not dirty."

Father—"Yes, my boy, I'm a self-made man."
Son—"Gee, Pop, that's what I admire about you. You always take the blame for everything."

Why Is It?

The agent drives it 400 miles while demonstrating and it's still a new car. Then you drive it home and it's a used car, worth $800 less.

Sometimes you get a good second-hand car or husband, but there is usually a reason why the owner let them go.

"Your confounded hair restorer has made my hair come out more than ever!" growled the customer.
"Ah, you must have put too much on, sir!" replied the quick witted barber. "Made the hair come all the way out, instead of only halfway."

Never Fails

Green gives you the right-of-way. This is especially true of the long green.

Aware of the Fact

"Help yourself to the cigars," said the host genially. "They are some my wife gave me for my birthday."
Man after man vowed he had sworn off smoking.
"What made you tell such a lie?" admonished the wife after the guests had left. "It was a pair of slippers I gave you for a present."
"Yes, my dear," the man replied, "but that box of cigars cost me $12, and I can't afford to give many of them away."

Frightened Into It

"How long have you been working for this company?"
"Ever since they threatened to fire me."

An anti-tobacco leaflet says a cannibal will not eat the meat of a man who has used tobacco. But what of it? Who's going to go without tobacco just to pamper a cannibal?

"I wish," she sighed, laying down the newspaper, "that we lived in a house where everything is done by touching buttons."
"I wish," sighed her husband, "that I lived in a shirt that had buttons to touch."

Sloppin' the Hog

Waiter—That customer over there says his soup is not fit for a pig.
The Boss—Take it away then, you idiot, and bring him some that is.

Mrs. A: "My husband has no idea what I go through when he snores."
Mrs. B: "Mine never misses his small change either."

Darnley: "What was the cause of the collision at the corner today?"
Hitzitt: "Two motorists after the same pedestrian."

Accident

Mule in barnyard, lazy and sick,
Boy with pin on end of stick,
Kid jabbed mule;
Mule made lurch.
Services Monday in the M. E. Church.

In the days when it was considered quite the thing to entertain the doughboys in private homes, Mrs. Vanastorbilt called up the Army and Navy Club and said, "I should like to have two of your men come to dinner with us Sunday at half past one, but please be sure that they are not Jews."
When Sunday came, two chocolate colored privates rang the bell at the Vanastorbilt house. Mrs. Vanastorbilt was, of course, greatly surprised. "Why," she stammered, "who invited you here?"
"Our commanding officer, Captain Cohen," replied one of the privates.

COVER TITLE CONTEST

SEPTEMBER WINNERS

FIRST PRIZE — $25.00

**" 'Fair' prospects are brighter for Johnny today,
For he's grooming his calf the electrical way."**

Kathryn Slaughter,
R. 1, Martindale, Texas

The following titles have been selected as winners of the $5.00 cash prizes:

**"Electric grooming with due care,
Will bring a victory at the fair."** Emilie L. Mitchell, R. 2, Hockessin, Del.

**"With electric power Johnny grooms bossie's hair,
While he dreams of the prize at the coming fair."** Mrs. A. B. Wilson, R. 3, Claremont, N. H.

"A lad with a winning way." R. L. Myers, R. 3, Port Huron, Mich.

**"Electrical power brings happy visions,
Of a well groomed calf bringing home prize ribbons."** Mrs. Clara I. Campbell, R. 1, Ransomville, N. Y.

**"While using electric 'beauty aids' in bossy's dollin' up,
This lad sees tents with waving flags and a gleaming silver cup."** Walter Jensen, R. 1, Sunnyvale, Cal.

RULES for November Front Cover Title Contest

For the best title to this month's front cover illustration, a cash prize of $25.00 will be awarded.

In addition, we will pay $5.00 for each of five titles given honorable mention.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

The winners will be announced in the January issue.

Only the farmers or members of the farm family, to whom this magazine was sent, are eligible.

Only one title may be submitted.

Use the form below or write your answers on a plain sheet of paper in similar form.

Contestants must answer question (a).

Write plainly and send your suggestion to the Title Editor, ELECTRICITY ON THE FARM, 24 W. 40th St., New York, before December 1.

My title for the November Front Cover picture of ELECTRICITY ON THE FARM is

.....

.....

.....

(a) List the order (1, 2, 3, 4) in which you plan to buy the following electrical Christmas Gifts:

- ☐ Toaster
- ☐ Heating Pad
- ☐ Waffle Iron
- ☐ Egg Cooker
- ☐ Percolator
- ☐ Cozy Glow Heater
- ☐ Electric Clock
- ☐ Electric Iron
- ☐ Bed Lamp
- ☐ Table Stove

Name..... **R. F. D.**.....

Post Office..... **County**..... **State**.....

The Heating Pad

(*Continued from page* 25)

pad out of its cellophane wrapper and plug it in every night.

"That heating pad is the great grandchild of the iron you used to heat and stick into the bed for me when I came a visiting," I wrote. "It will warm up your bed so you can sleep comfortably even with a window wide open to those Minnesota winds. We use ours often when we come in late and the house is cold. It's lots pleasanter to relax and go to sleep in a warm bed than it is to lie and shiver, tense and rigid while the heat of our bodies slowly warms up the bed clothes."

I hope she took my advice, but I am not sure that she did. The habit of easy comfort is a rather modern thing. She probably looks on it as a luxury if no one is sick, but is a very modest luxury.

Adjustable Heating Element an Added Convenience

The heating element in our pad has three heats. If we turn it on *high,* it uses 75 watts. That is the way we start it out, so it will warm up the bed quickly. When we press the button that turns to *medium,* we cut off half of its current, and when we turn it to *low* for awhile, we are using only 19 watts, less than the smallest lamp in our house demands.

We use it about twenty minutes a night, not every night to be sure, but often during the cold weather. At twenty minutes a night, we get ten hours of use in the course of a month. A 75-watt heating element burning for ten hours uses 750 watt-hours or just three-quarters of a kilowatt hour, and that, as I pointed out to my aunt, costs less than a package of gum.

Know Your Well

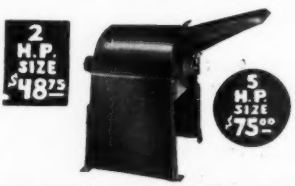
(*Continued from page* 19)

the well, the well pipe was pulled out without great difficulty. A 30 inch copper screen point was on the end of the 1½ inch pipe, which served as both suction pipe and well casing. On examination the point was found to be practically stopped up with very fine sand and a sort of lime formation which resembled concrete. The condition was such that it seemed almost impossible for any water to get through.

While a well point may be cleaned by the use of an acid, such as plumbers use in cleaning out hot water pipes, this method of cleaning is hardly justified when a new point can be bought for a relatively small amount. The labor involved and the cost of the acid would be about as much as the cost of a new point.

Under conditions where it is very difficult to pull the pipe from the well, there have been cases where points have been cleaned by the use of acid without pulling them from the well. A method of cleaning wells with muriatic outlined by F. H. Peck of Coleridge, Nebraska is as follows: "I use ½"

THE PRATER MILL is saving money for hundreds of farmers, as your Power Company will tell you. It works entirely automatic—press the switch and leave it to do its job. WRITE US—now—telling us how much feed you use, and we'll tell you what it would cost to grind it with a PRATER MILL. No obligation—WRITE NOW—



PRATER PULVERIZER CO.
Dept. K., CHICAGO, ILL.

black pipe through which the acid is poured into the bottom of the screen point. I reduce an old 3" iron cylinder down to fit the ½" pipe and put that on the top of the pipe. I drill several ¼" holes in the lower three feet of the bottom length of pipe and lower it to bottom of screen, being sure that there is no obstruction in the pipe. (I usually run a ⅛" pump rod through the pipe to be sure.) Then I pour in a gallon and a half of acid and let it stand for one hour. Then I put in that much more and remove the pipe and put in the pump or tubular well valves, as the case may be, and start pumping, and pump until the water is free of acid taste. The acid is heavier than water and will go to the bottom of the well and there is so much water that it dilutes the acid so that there is little danger of it harming anything. There is no use of using leather washers to try to keep the acid out of well pipe.

Cleaning Screen Point

"I use the ½" pipe so it will not take so long to get the acid into the well as with smaller pipe and I rarely have any trouble getting the acid down as I pour it in slowly. After putting in the acid, I pour some water through the pipe to rinse it out. After using the pipe for some time it will begin to scale on the inside and you must be careful that it does not clog with the scale and let the acid through. However, I used the same pipe for ten years before I had to get new pipe. I have used acid to clean 2", 3", and 4" screens and never used more than three gallons and have cleaned 1¼" screens with two gallons." This method of freeing the point from lime or fine sand for shallow driven wells would hardly be recommended.

An interesting thing was discovered when the well pipe was drawn from my well last spring. There were two small holes about ¼ inch in diameter through the walls of the pipe, about three feet above the well point. It was evident that these holes were burned through the pipe some months before when lightning burned out the motor on the pumping unit. If this pipe had not been pulled out of the well to put on a new point the two holes would not have been discovered. Under such conditions if the water level had lowered to a point below the holes in the pipe, the pump would have drawn air and the trouble would have been difficult to find.

It is very evident that the first step in checking on the operation of a pumping unit that is giving trouble is to be sure it is in good mechanical condition. However, before condemning the pump that does not work 100 per cent be sure the well is supplying a good flow of water.

Fish Diet

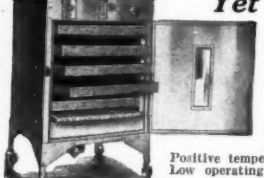
Willie: "Maw, if the baby was to eat tadpoles, would it give him a big bass voice like a frog?"

Mother: "Good gracious no. They'd kill him."

Willie: "Well they didn't, Maw."

540 Egg Capacity—

Yet the Size of a Radio!



Here is Oakes latest achievement—"The Little Giant Electric." Equipped with the famous Oakes Electric Heating Unit. Takes up very little floor space. Operates entirely automatically. Nothing to do but turn eggs.

OAKES LITTLE GIANT INCUBATOR

comes complete ready to plug in any light socket and start hatching. Hatcheries find it excellent for taking off test hatches. Poultrymen find it a safe, easy, sure producer of high hatches. No odor, smoke or dirt. Positive temperature control always. All metal cabinet, fully insulated. Low operating cost. Attractively priced. Write for catalog.

THE OAKES MFG. CO., Dept. 77, Tipton, Indiana

NEW WAY TO CHURN

Thousands are changing to this simple, convenient, modern way to churn. It's the famous DAZEY principle adapted to electrical operation. Ends the drudgery. Just turn the switch. Made in 2, 4, 6 and 10 gallon sizes. Write today for catalog and further information.

DAZEY CHURN AND MFG. CO., Dept. 27
Warne and Carter Avenues, ST. LOUIS, MO.

● PAUL ●
WATER SYSTEMS

Provide Running
Water at Low Cost

WRITE US

THE FT. WAYNE ENGINEERING & MANUFACTURING CO.
1722 N. Harrison St.,
FORT WAYNE, IND.

The
Inside Back Cover
is for your
convenience
Why not use it?

ESCO
Reg. U. S. Pat. Off.
Electric Milk House Equipment

Milk Coolers for cans . . . and for bottled milk . . . Dairy Water Heaters . . . Dairy Utensil Sterilizers.

Write for full details

ESCO CABINET CO.
WEST CHESTER, PENNA.

Yours for the Asking

Check over the list below and write directly for any of the free bulletins that interest you. Manufacturers will gladly supply this information.

Don't forget to mention ELECTRICITY ON THE FARM when writing.

"A Money Maker for the Modern Dairyman" is the title of an interesting folder on electric grooming which can be obtained by writing the Hinman Milking Machine Co., Oneida, N. Y.

●

Owners of homes and camps beyond sewer lines can obtain detailed information on complete "Certified" Sewage Disposal Systems by writing San-Equip, Inc., Syracuse, N. Y.

●

"Portable farm motor including motor and truck," described in Form 2917. This can be obtained by writing The Master Electric Company, Dayton, Ohio.

●

"Fresh Running Water" is the title of a new four page folder which can be obtained from The Dayton Pump & Manufacturing Co., Dayton, Ohio. This folder illustrates and describes several of the most popular models of Dayton Water systems.

●

"Cool Your Bottled Milk Electrically" is a four page folder illustrating and explaining the use of equipment for cooling bottled milk and providing ideal storage in cold, dry air, which may be obtained by writing the Esco Cabinet Co., West Chester, Pa.

●

A convenient portable unit for driving belted farm machinery is described in the booklet "G. E. Portable Farm Motor" (GEA—192G), and will be supplied upon request to General Electric Co., Schenectady, N. Y.

●

Folder showing the Stewart remarkable new electric clipper complete with motor and selling for less than $20.00, described in a circular "A Sensation." Furnished by Chicago Flexible Shaft Co., Chicago, Ill.

"Why Grind Feed on the Farm" is explained in a bulletin issued by the C. S. Bell Co., Hillsboro, Ohio.

•

"Cullman Electric Pump Drive" is the title of a folder which can be obtained from the Cullman Wheel Co., Chicago, Ill.

•

The "Reel Blade," a paper of interest to poultry raisers and hatcherymen, can be secured by writing to Ira M. Petersime & Son, Gettysburg, Ohio.

•

"Wherever There Is Life There Is Need for Running Water" and why is described in the water service booklet obtainable from Fairbanks, Morse & Co., Chicago.

•

The Lauson Corporation, New Holstein, Wis., have a complete booklet of instructions for installing electric pump jacks properly; available for the asking.

The Utility Motor

(*Continued from page* 8)

necessity but will prevent the battery from discharging when the generator is not running. Otherwise it would be necessary to disconnect the battery every time the motor is stopped.

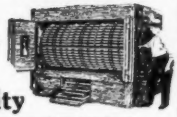
If a battery is allowed to become fully discharged it will take several hours to recharge it. The charging rate should start in at about ten amperes and taper off as the battery begins to bubble quite vigorously. The rate of charging on most generators is increased by advancing the third brush in the direction of rotation of the armature. To decrease the charging rate move the third brush in the opposite direction or against direction of rotation.

Several of the later model cars have the generator driven by the fan belt. The farmer who owns one of these cars and has a small portable motor should be able to keep his battery well charged even in the coldest of weather.

"Are you sure you killed all the germs in baby's milk?" asked mother of the new maid.

"Yes ma'am," replied the maid. "I run it through the meat chopper twice to make sure."

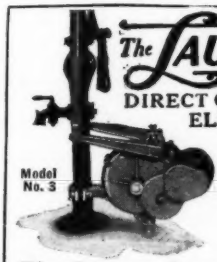
MAKE MONEY!
Start a Hatchery in Your Community

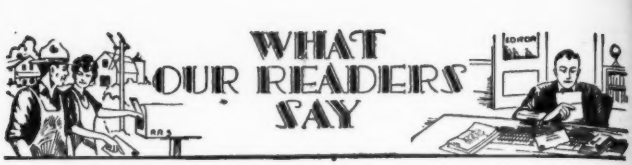


PETERSIME INCUBATORS are easy to operate, use little current and produce large hatches of high vitality chicks.
Write for New Free Catalog to learn how to start a profitable business of your own.
IRA M. PETERSIME & SON
E. F. 38 Gettysburg, Ohio

Valuable Information

All the manufacturers you will find represented in our advertising pages have interesting and valuable data about their equipment which is yours for the asking. When writing, be sure to mention ELECTRICITY ON THE FARM.


The LAUSON
DIRECT GEARED ELECTRIC JACK
Model No. 3
Built like a high grade auto transmission.
Also interchangeable motor or gas engine.
The Lauson Corporation
700 Michigan St., New Holstein, Wis.



Wash Day a Pleasure

My washing machine holds first place among my electrical servants. It gives me a half a day's pleasure each week and its hum is sweet music to me. The rub-a-dub-dub in the old wash tub made me weary, tired and blue, but now my silent servant is always ready to do my washing, and just by pressing the button I can turn my wash day from drudgery into pleasure.

Mrs. Otto F. Orman,
R. 3, Sandy Lake, Pa.

• • •

Our Automatic Water Pump

My choice of electrical servants or perhaps I should have said our choice, because it serves the whole family as well as it serves me, is our electric automatic pump. We bathe like our city cousins. The chickens get their water at the automatic fount. We wash the car, wash dishes, cool the milk and turn on a hose and the scrubbing is done in less time than one thinks. We turn on a faucet and and have an abundant supply at hand, and with more attachments it will serve us better yet.

Mrs. Byron D. Bardo,
R. 4, Bloomsburg, Pa.

• • •

What a Time Saver!

When speaking of electrical servants, I do not hesitate to praise the electric iron. We have had ours in use for several years, so I know its value. How tiresome it was to heat the old flat-irons on a range and to keep up the fire. No more running back and forth to change irons. I can now keep my electric iron in my hand and do my weekly ironing in a few hours. What a time-saver it is. Ironing now is a pleasure and not a drudgery.

Eleanor E. Boeger,
R. F. 1, La Grange, Ill.

• • •

An Absolute Necessity

Most of our electrical appliances might be classed as luxuries, but from the standpoint of health alone, I consider our electric refrigerator an absolute necessity.

Living on a poultry farm some distance from an ice supply, our refrigerator was filled very irregularly. Food often spoiled. Now, with electric refrigeration, food always keeps.

Added to that all-important service of safeguarding our health, we have comfort, convenience and peace of mind. And lastly, the ease with which we have a wide variety of delicious, nourishing, frozen desserts! As the children say, Oh Boy!

Mrs. Ruth A. Hart,
R. 1, Bristol, Conn.

CLASSIFIED ADVERTISING

The LYON ELECTRIC COMPANY manufacture electric poultry equipment exclusively. Long, practical experience in the highly developed California rural electric field enables us to furnish quality devices at reasonable prices. The LYON line includes: Brooders—Incubators — Egg Testers — Burglar, Temperature and Power-off Alarms — Heating Elements—Thermostatic Supplies—Time Switches—Wiring Supplies. Write for catalog today. LYON ELECTRIC COMPANY, 2075 Moore Street, San Diego, California.

From the standpoint of dependability MIDNIGHT ALARM has become the standard for PROTECTION with Farm and Home owners. Thieves don't announce their visits, but MIDNIGHT ALARM will tell you when they get there. Don't risk your Farm investment any longer. It costs less to prevent a loss. Think that over. MIDNIGHT ALARM SYSTEM, 2327 Chickasaw, Cincinnati, Ohio. Write for circular F.

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Electricity on the Farm

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Vol. 4 NOVEMBER, 1931 No. 11

A PREDICTION Doctor E. A. White, Director of the Committee on the Relation of Electricity to Agriculture, and probably the most prominent figure in rural electrification in this country, in an address before the 25th meeting of the American Society of Agricultural Engineers made the following statement:

"My own ideas are that ten years hence the family farm will still be the dominant force in American agriculture because there are enough men of ability who prefer this form of life to insure such a result. Yes, there will be changes in the average size of farms, changes in crops, changes in systems of farming, but, after all, the man of ability on the family-size farm can produce with such a small overhead that he will defy competition for many years to come."

And central station service will contribute in no small measure toward this end. It has proven itself the most efficient form of power for stationary operations, and in the future may even prove a factor in power required for field operations.

The automatic feature of electrically operated equipment cuts down man power tremendously, and enables the farmer to perform chores, in particular, with the minimum of labor and the maximum of time saving.

Electricity, too, is making the farm a far more desirable place for the family to live. It brings all modern conveniences right to the farm household and makes the farm home, with its natural advantages, a superior place to rear a family.

Rural electrification, instead of speeding up corporation farming, will bear a marked influence in producing the opposite result.

What future for application of

ELECTRICITY IN AGRICULTURE

By E. A. WHITE
Director, Committee on the Relation of Electricity to Agriculture

E. A. White

IN order to discuss the place which electricity may occupy in the agriculture of ten years hence it is first necessary to build a perspective of that agriculture. If electricity were the dominant force directing the path of agriculture, we would start at the other end, by deduction, arrive at our picture for the future. Such, however, is not the case. There are many forces shaping the destiny of American agriculture. Therefore, electricity will be considered simply as one among many.

Frankly, the only justification for choosing such a subject is the hope that it may stimulate thought and provoke discussion. It offers ample opportunity for differences of opinion. From my own standpoint, attempting the role of a prophet is most unsatisfactory. History shows that most prophets popular in their own day and generation have been wrong, and that most of those who have been right have been unpopular. In addition to this I do not know what agriculture will be ten years hence, and I have a deep-seated Scotch suspicion of anyone else who claims to possess such knowledge.

One thing appears to be certain —agricultural practice will be different ten years hence from what it is today. Apparently, as has been so often expressed, in the affairs of men there is only one sure thing, and that is change.

We may expect the percentage of our population engaged in agriculture to show a further decline. The primary factor influencing this change is the total horsepower hours used on our farms. This has increased, and the end is not yet. We can logically expect more horsepower per worker ten years hence than is the case today. Yet, due to our modern transportation system, city rents and taxes, the number of people living in the country or suburbs may increase. This particular phase of national development will probably not be of special importance to agriculture, but there are evidences of another movement which may have a profound bearing upon the situation. With all farm land reduced in price, much marginal land to be secured at an extremely low total figure, and industrial competition in our cities becoming more intense, there is already a "back to the farm" movement under way. It is, of course, anyone's guess how long this will continue.

This situation leads us directly into the much discussed question of the corporation farm. Let us recognize at the outset two facts with reference to the corporation farm; first, the idea is not new, and, second, mere size is not a guarantee of success. There have been large wheat farms, large cotton plantations, large sugar

*Extracts from a paper delivered at the Twenty-fifth A.S.A.E. Meeting.

plantations, large general farms, in this and other countries for years. Some of them have been successful and some have not. At the same time there have been plenty of family farms facing just as much trouble. Then we can find both corporation and family farms which have been successful.

A man of ability and vision as the manager of an agricultural enterprise will evolve a system which works whether the unit is large enough to employ the services of a hundred men and therefore be classed as a corporation, or whether it is small enough to be classed as a family farm.

My own ideas are that ten years hence the family farm will still be the dominant force in American agriculture because there are enough men of ability who prefer this form of life to insure such a result. Yes, there will be changes in the average size of such farms, changes in crops, changes in systems of farming, but, after all, the man of ability on the family-size farm can produce with such a small overhead that he will defy competition for years to come.

Permanent Farm-Mindedness

What may prove to be one of the most significant agricultural developments of our time is the beginning of what may be called a "permanent farm-mindedness" on the part of the farm population. In the past it appears that a large proportion of farm people have been both mentally and physically on the move. In the pioneer days it was west to new lands. The vanguard of this procession often moved three or four times, turning their partially developed holdings over to other movers who followed. Later it was the movement from farm to town. The idea was to save, acquire a competence, move to modern conveniences for the wife, education for the children, and horseshoe pitching, croquet, or other form of diversion for the farmer. By this means the rural districts were stripped of surplus capital, mature judgment and operating experience. Furthermore, it was no exceptional experience for the man who moved away from the farm to give it no further attention than to collect money due or find a new renter.

Fortunately, there are evidences that this situation is changing. For various reasons it is being recognized that the owner of land has a responsibility for its operation. An increasing number of people who live on the farm are coming to look upon it as a place of permanent abode. Interest is not centered upon moving but upon improving, making the farm a desirable place to live. Such a frame of mind leads to better homes, better roads, better schools, in short, the building of a rural community. There is every reason to believe that the next ten years will see a further substantial developmentt in this direction.

Operators of Land

All of this means that we are going from a generation of land holders to a generation of land operators. While there were notable exceptions, as a rule profit has come from increment in the selling price of land. The successful farmer was one who was most dexterous in keeping the expenses down, mining the fertility, selling out at a high price, getting the cash, and moving away. The profits in farming during the next ten years will come from operating as contrasted to holding land. The operators' outlook, methods and results are entirely different from those of the holders. The results in this direction will be of signal benefit to agriculture and the nation.

An Interesting Speculation

The place which electricity will occupy in the agriculture of 1941 is a most interesting speculation. Naturally, I am enthusiastic over the outlook. Tables showing the total amount of electricity on the farms and the number of farms served are still pointing upward. We may well ponder over the significance of these facts, for among other things it undoubtedly indicates that the farmer and his family find this service of value.

It is probable that ten years hence the farm without electric service will be looked upon as lacking one of the essentials for economic production and desirable living standards. Already prospective purchasers of farms put the question with reference to electric service near the head of the list.

There is no other one source of energy which offers so much to the farm home as electricity. This fact will be taken advantage of in full measure. Ten years hence there will be many more farm homes than is the case today equipped with just as many modern conveniences as any city home. Electric service will be making increased contributions to the comforts of farm life and consequently to a changed outlook upon rural living. There will be pride in the farm home. More people will retire in the country. Some of this surplus which has been moving away—capital, experience, judgment—will remain upon the farm.

Service Will Increase

Of course, the number of farms receiving this service will increase, and this increase will be relatively rapid once we turn the economic corner. When we do finally make this turn, the number of farms served will double in a relatively short period of time. Ten years hence we should be talking about electric service on three million farms. This appears to be one of the big farm developments just ahead of us.

The adaptability of electricity to stationary operations has been amply demonstrated. In the future it will furnish an increasing percentage of the energy required for such work. This adaptability will hasten certain developments. For example, the use of irrigation, especially for fruit, vegetables and pastures, promises to be increased by the introduction of electric service. In this connection it offers the family-size farm a most usable form of energy and therefore gives this farmer another means for competing with larger units. It will reduce hard labor and increase the output per worker.

One would be bold indeed to say that electricity will never be used as a source of energy for field operations. In fact, it is so used today to a limited extent. When experiences in this field are analyzed, it appears that some new developments, either in the transmission of energy or the storage battery, will be necessary before the electric motor becomes a serious competitor of the internal combustion engine. However, the problem is being aggressively attacked, and the next ten years may bring startling results.

Due to the still unrealized possibilities for cooking, refrigeration, water heating, irrigation in humid regions, hotbed and soil heating, ultra-violet light, not to mention numerous other well-known and proved uses, together with such developments as forage drying and fiber processing appearing on the horizon, the unknown uses certain to be developed by the inventor, engineer and chemist, we can look forward to a remarkable increase in the total amount of electrical energy used in agriculture. Just where ten years will bring us in this development it is difficult to say, but ultimately I look for an average energy consumption per farm of between 500 and 1,000 kilowatt hours per month.

G. E. Appoints New Purchasing Agent

The General Electric Company, Schenectady, New York, recently appointed Harry L. Erlicher as purchasing agent, to succeed L. G. Banker, who retired on October 1, after having completed 43 years continuous service with the company. Mr. Erlicher entered the employ of the company as office boy in the purchasing department and has risen through the ranks of that department. In his new position Mr. Erlicher will direct purchases of materials aggregating more than $100,000,000 a year.

"You say that you have driven a car for ten years and never had a backseat driver?" inquired the weak-chinned gentleman.

"Yeah," asserted the sad-faced man. "I drive a hearse."

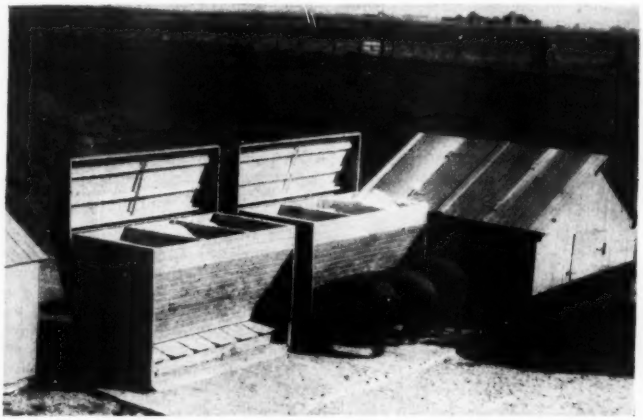
RURAL ELECTRIFICATION Salesmen's Forum

Conducted by TRUMAN E. HIENTON

Wheat Grinding

DURING 1931 733,000,000 bushels of wheat disappeared into domestic channels in the United States, where ordinarily about 630,000,000 bushels disappear yearly. This amount was the highest on record because a short crop and low prices resulted in heavy feeding of wheat. The total supply of domestic wheat in the United States for the current crop year, including the carry-over from last year of 319,000,000 bushels, and the new crop of 894,000,000 bushels, is estimated at about 1,213,000,000 bushels (Indiana Crops and Livestock No. 72, Sept. 1, 1931). With this situation existing, unless the demands of the export market increase, which took an average of 154,000,000 bushels net each year for the five crop years 1925-26 to 1929-30, it is very probable that a considerable amount of wheat will be fed again this year. Personal observations of the writer in the state of Indiana indicate that much new wheat has already been fed since it was threshed.

The question naturally will be asked, what relation has the feeding of wheat to livestock to dealers in farm equipment and to rural electric salesmen. The answer is a short one, but which should have a very direct appeal to both—wheat should usually be ground



These Duroc Jersey hogs on the farm of C. R. Gustavel, near Chalmers, Indiana, having their choice of ground wheat and oats or shelled corn, prefer the ground small grains. The feeder to the left, which contains shelled corn, is neglected.

when fed to livestock. Then, too, the results of experiments and of practical experiences in feeding wheat show that it may be substituted in whole or in part for other grains in feeding rations for hogs, beef and dairy cattle, lambs, horses and poultry.

Grinding Cost Figures Few

Few figures, if any, have been reported on the cost of grinding wheat with a small motor-driven grinder, but records secured under the author's direction indicate a consumption of one kilowatt-hour to grind from 270 to 300 pounds of wheat through a 1-8 inch screen on a small hammer grinder. Wheat ground through a screen of this size was used in a series of hog feeding experiments conducted by the Animal Husbandry department of the Purdue University Agricultural Experiment Station and considered very satisfactory. An Indiana dairyman grinding some wheat for his dairy ration used a 1-4-inch screen on a similar small hammer grinder, and was satisfied with the grinding even though a small percentage of whole grains passed through the screen.

The total cost of grinding grains including wheat will, of course, include overhead charges besides the cost for power. Overhead charges consist of interest on one-half investment, depreciation, taxes, and maintenance. Assuming a 10-year life for the feed grinder and a 15-year life for the motor, total overhead charges on a motor costing $150.00 and a feed grinder costing $75.00 will be approximately as follows:

	Motor	Grinder
Interest on half first cost @ 6 per cent.	$ 4.50	$ 2.25
Depreciation motor 6 2/3 per cent, grinder 10 per cent	10.00	7.50
Taxes one half first cost @ 2 per cent	1.50	.75
Maintenance	1.00	1.50
Total	$17.00	$12.00

Thus the salesman, in helping his farmer prospect to decide on the purchase of a grinder, should include these charges as a part of the above costs. Data are not available to substantiate the rate of depreciation given but those used should be very conservative, as borne out from the results of a survey conducted by more than 130 owners of feed grinders in Indiana by the author.

Assuming that the prospective owner may grind 800 bushels of wheat or 24 tons in the course of a year, his cost of grinding with electric energy at 5 cents per kilowatt-hour would be $9.10 for power (182 kw.-hr.) and $29.00 fixed costs, totaling $38.10. The cost of 100 pounds of wheat ground, $0.079, is just slightly more than one-half the custom charge of 15 cents per 100 pounds usually made at the mill or at the farm in cases where the custom grinder is transported to it. Labor costs were not made in the above charge since with proper installation of the mill the labor involved may be less than that required to carry it to and from a custom grinder brought to the farm, and will be considerably less than where the grain is hauled to town.

Power Consumption Differs

Cost of grinding grain may be less than that arrived at in the previous calculations since energy rate may be less than that quoted and the grinder may be used to grind a larger amount of grain during the same length of time without adding to the overhead costs. In three years of grinding with an outfit of the size previously discussed, an Indiana farmer has ground approximately 216 tons, an average of 72 tons per year, or three times the amount used in the previous estimate. Costs of grinding wheat on that farm are therefore considerably less than the figure given. On the other hand, certain grains such as oats require more power per unit of weight ground than does wheat or shelled corn, so that an allowance must be made for the difference in power consumption.

A still further possibility of reducing cost of grinding is offered through lowering the cost due to overhead charges by the use of a

smaller grinder and smaller motor. A great many farmers do not grind or have ground sufficient grain during the year to warrant their purchasing a 5-horsepower motor and the accompanying grinder. Even though the farmer did buy the grinder he would be of little interest to the power company because of the very poor load factor of that motor. For that reason the salesman may be doing the farmer and power company both a favor by selling him a mill smaller than the farmer may at first think he needs. Several feed grinders driven by 2-horsepower motors and one driven by a 1-horsepower motor are being used on Indiana farms to the satisfaction of their owners and are grinding grain at less total cost than that made at custom grinders.

Some Experimental Results

The feeding of wheat has generally shown greater feeding results when fed to hogs than when fed to other classes of livestock. Bulletin No. 2 of the Federal Farm Board on Practical Experiences in Feeding Wheat, issued in November, 1930, reports as follows the result of a survey on feeding wheat to hogs:

"Summarizing the experimental evidence on the value of wheat as a hog feed, these facts are outstanding: First, wheat may be substituted for corn in most rations for hogs. Second, wheat has about the same feeding value or slightly higher feeding value than corn. Third, it is necessary for some form of protein concentrate to be used to supplement wheat in the ration. Fourth, grinding wheat increases its feeding value 15 to 20 per cent and soaking will not take the place of grinding. Fifth, wheat when fed to hogs at prices which have prevailed this season has brought from $1 to $1.50 per bushel."

The results of experiments conducted at the Purdue University Agricultural Experiment Station, reported September 25, 1931, on feeding ground wheat verified the facts given above. However, hog prices used in figuring the return on the wheat were lower than those used in 1930, so that it brought 79 cents per bushel with the selling price of the hogs estimated at $5.50 per 100 pounds. At this rate of return for his wheat the farmer is enabled to sell it at a much higher price than as if it were sold as grain.

In another experiment conducted simultaneously, hogs returned only 34 1-2 cents per bushel where they harvested and ground the wheat themselves. It would seem, therefore, that hogging off wheat is not a practical proposition since the ground wheat returned more than twice as much per bushel after harvesting, threshing, and grinding charges were paid.

The Federal Farm Board also says that "According to a recent publication of Purdue University: When properly fed, wheat is an excellent fattening feed for hogs. Experiments have shown that grinding or cracking increases the feeding value of wheat about 15 to 20 per cent, while soaking increases it about 5 per cent. The feeding of coarsely ground wheat in self-feeders with tankage is a very satisfactory method of feeding wheat to hogs. Wheat of good quality, ground or cracked, is worth 8 to 10 per cent more than corn of equal quality. Where corn is available, a mixture of corn, wheat, and tankage is a very desirable mixture for hogs."

Data for Comparison

On the basis of ground wheat being worth 79 cents per bushel or $1.31 per 100 pounds when fed to hogs, unground wheat would be worth only from $1.05 to $1.11 per 100 pounds, according to the above figures. Thus, the minimum amount which might be spent for grinding would be the difference of $1.31 and $1.11 or 20 cents per 100 pounds, and the maximum 26 cents.

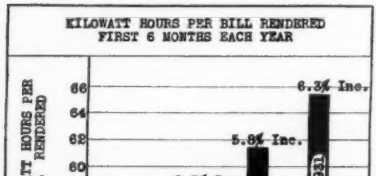
The use of wheat in the dairy ration to replace all or part of the corn is recommended by many state agricultural experiment stations. Probably the highest percentage of wheat in the grain ra-

(Continued on page S 10)

This Company's Farm Cu
TIMES as Much Electr

DAY by day new farm customers are being added to the lines of The Public Service Company of Northern Illinois not only on the new line extensions over the territory but also on the already existing lines by the men assigned to farm electrification in the Districts. Practical electrified farm equipment and useful household appliances are recommended and sold even though the topic of conversation is very often "the depression" and the low prices of farm products.

Since 1928 the kilowatt hour consumption has jumped from less than one million to over three million kilowatt hours during the first six months and the increased use of load building appliances has steadily built up the kilowatt hour consumption per bill rendered by 8.6 kw. hrs., or an increase of 15.1% during the four years. During this period the number of bills rendered each six months increased from 17,436 to 47,038 or 170%.



There are very definite reasons for these increases as shown, for not only are the problems of properly applying electric power to the requirements on the farm becoming more thoroughly understood, but those connected with farm electrification have made determined sales efforts. Also farm organizations are gradually becoming more interested in the real value of electricity for improved lighting, for more convenient power applications and desirable, safe methods for heating.

For the farmer to light his home, farm yard, or farm building at the snap of a switch, or the poultry house automatically at a desired time, is considered a necessity in most cases. Instead of laboriously carrying water from the well an electric motor easily and economically provides fresh water at the faucet. The preservation of food by electric refrigeration is given more and more favorable consideration by farmers. During the past 18 months over 120 large capacity electric refrigerators have been installed on farms by the Company.

Adequate wiring for the installation of the cool, clean electric range, and the convenient storage water heater for the home or the dairy has become

USE OF CURRENT M TERIA

The kilowatt hour consumption of f custome pany of Northern Illinois for the first months like period for 1930.

SELLS NEW EQUIPM

The sale of new equipment and app ces, tog viously owned equipment, is responsible this g

PAVING WA FOR

This Company is constantly paving way fo ment to the farm customers, by sendi hese cu ELECTRICITY ON THE FARM. At the sent ti TRICITY ON THE FARM are mailed to m custo

* * * *

NOTE: The article reproduced he th rece magazine of the Public Service Company Northe in kilowatt hour consumption of their f custome reading by anyone who is interested in reasing

R. Bo

"The i tim fro period o 1,000,000 is an ind to recog their ho We are benefits ticipated ndustry, dealers, cultural

MILLIONS OF KILOWATT HOURS

m Customers Use THREE Electricity as in 1928

T MATERIALLY INCREASED

of fa customers of the Public Service Com- first six months of 1931 increased 60% over a

NEW EQUIPMENT

appliances, together with a better use of pre- sible for this gain.

WA FOR SALE

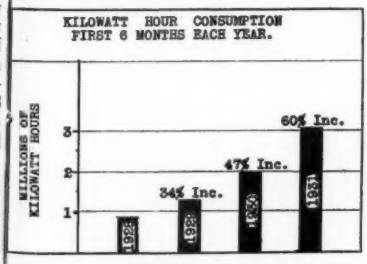
ving a way for the sale of electrical equip- endin these customers each month a copy of the present time over 7,500 copies of ELEC- d to m customers monthly.

* * *

hen th recently appeared in the monthly pany of Northern Illinois. It shows the increase ir fa customers. This article warrants careful d in reasing the farm load.

Mr. R. Boonstra, Agricultural Engineer, says:

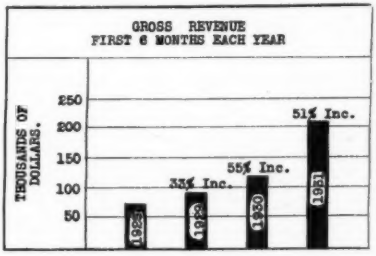
"The increase in the kilowatt hour consumption from less than 1,000,000 kw. hr. over the period of the first six months of 1928 to over 1,800,000 kw. hr. over a similar period in 1931, is an indication that the farmers are beginning to recognize the many uses of electricity in their homes and around their farm buildings. We are just beginning to reap some of the benefits of the development work jointly participated in by the utility power and light industry, farm implement manufacturers and dealers, farm bureau organizations, and agricultural experiment stations."



a first consideration for the new customers. The use of motors for water pumping, feed grinding, silo filling, machine milking, and for many more operations requiring less power, is rapidly becoming general and of greater importance.

The development of new uses for electric power on the farms is revolutionizing methods of production and time of marketing. The electrical heating of incubators and brooders in the hatcheries and on the farm has enabled the operator to regulate conditions more satisfactorily. Such improved conditions hasten the growth of the birds and make them more valuable.

Undoubtedly the most outstanding of all the new heating applications on the farm is that of using a specially



constructed cable to increase the soil temperature. The most general use of the method today is for the so-called "hotbed."

Vegetable plants and flowers may now be more easily started during the cold weather of late winter or early spring and without unnecessary labor or undesirable conditions produce stronger plants much quicker, thus enabling the grower to profit by the early market.

Salesmen's Forum

(*Continued from page S 7*)

tion was used by the Purdue University station in feeding experiments reported on the use of "Wheat for Dairy Cows." Three trials were conducted to compare the feeding value of wheat as compared with corn. "In these trials corn silage and alfalfa hay were the roughages and the grain rations contained 400 pounds of ground corn or ground wheat, 200 pounds of ground oats, and 100 pounds linseed meal. The rations fed were identical except that 400 pounds of ground wheat replaced 400 pounds of ground corn in the grain ration of two lots of cows.

Recommendations Vary

As a result of these three feeding trials in which 10 cows were fed for a period of 189 days on each kind of grain, the following deduction was made by Prof. J. W. Wilbur, "The figures show very conclusively that wheat may replace corn pound for pound in the grain ration of dairy cows receiving legume hay and silage. Wheat should be either cracked or ground to a medium degree of fineness but not as fine as corn meal." Since recommendations vary for different stations under various methods of feeding it is advisable to consult local agricultural experiment stations. The conclusion of the Federal Farm Board is that "The expert opinion on feeding wheat to dairy cows is that most states will not recommend wheat to the exclusion of other grains. It can be substituted for corn and barley up to one-third to one-half of the grain ration. The exact proportion of these different grains depends upon the price and the ease with which the dairymen can secure them."

Wheat has apparently been fed less extensively to beef cattle than to hogs, but experiments have been conducted in Missouri, Kansas, Oklahoma and Montana with varying success. In the Montana test young steers were fed ground wheat and alfalfa and "According to D. E. Richards, livestock extension specialist at Bozeman, Montana, wheat is an excellent feed for fattening beef calves."

Wheat fed alone as the grain ration may not be as satisfactory as corn from inspection of results of a 100-day feeding trial conducted at the University of Missouri, where difficulty was experienced in bringing cattle being fed ground or whole wheat to full feed. A Kansas report emphasizes that ground wheat is not as palatable as corn for cattle. However, the feeding of wheat in combination with other grains such as corn, ground barley, or ground oats seems to be more satisfactory. The result of the Missouri trial, which ended November 20, 1930, showed an average daily gain of 2.57 pounds for cattle receiving a grain ration of equal parts of corn and ground wheat with cotton seed cake and alfalfa hay against a gain of 2.38 pounds for corn, cottonseed cake, and alfalfa. The feed cost per 100 pounds gain with corn at 90 cents per bushel and ground wheat at 95 cents per bushel was $12.19 for the corn alone and $11.24 for the corn and wheat, while the selling price for both lots was the same.

Experimental Results in Feeding Wheat to Lambs

Experiments have been conducted in several states on the feeding of wheat to lambs with fairly good success. In tests reported by the Federal Farm Board, the wheat fed by all experiment stations was ground, although the Nebraska station reported that "While whole wheat was practically as palatable as shelled corn, ground wheat was distinctly less palatable than either of them." In states where much lamb feeding is carried on, it is suggested that the recommendations of the local experiment station be learned.

Wheat may be included as a part of the grain ration for horses, according to recommendations of agricultural experiment stations but should not replace all of the corn or oats. No experimental evidence is available on the value of feeding ground and whole wheat, although many recommendations specify ground wheat. Ac-

cording to Prof. C. W. McCampbell of the Animal Husbandry department of Kansas State Agricultural College "Wheat should be ground or rolled if used as a horse feed."

Wheat or its products are commonly included in rations for starting and raising chicks and also in the laying rations. A considerable amount of feeding work with wheat has been conducted at the Purdue Agricultural Experiment Station under the guidance of Prof. C. W. Carrick of the poultry department. As a result of these experiments the following rations with wheat for chickens have been recommended:

All-mash Chick Starting Ration

1 to 10 Weeks

	Pounds
Ground wheat	475
Meat scraps (50% protein)	100
Dried skim or buttermilk	30
Alfalfa leaf meal	20
	625

Growing Ration

10 to 20 Weeks

Grain	Pounds
Whole wheat	500
Mash	
Ground wheat	400
Meat scraps	70
Alfalfa leaf meal	30
	1000

Laying Ration

Grain	Pounds
Whole yellow corn	500
Mash	Pounds
Ground wheat	350
Meat scraps	90
Alfalfa leaf meal	60
	1000

It will be noted that *ground* wheat makes up from 35 to 76 per cent of the various rations listed. This wheat should be finely ground, according to Professor Carrick.

The experiments and practices in feeding of wheat to different kinds of livestock have been mentioned to show the part which motor-driven feed grinders may be called up to play in this enormous feeding program. It would seem that power companies and dealers together can render the farmer a service in aiding him to prepare his wheat for feeding at a reasonable cost and at the same time secure business for themselves.

Bulletins which may be of interest to the reader and give more detail than has been possible in this article are:

"Feeding Wheat to Livestock," Misc. publication No. 96, U. S. Dept. of Agriculture, Washington, D. C.

"Practical Experiences in Feeding Wheat," Bulletin No. 2, Federal Farm Board, Washington, D. C.

"Wheat as a Feed for Livestock," The Kansas City Stock Yards Co., Kansas City, Missouri.

"Wheat for Fattening Yearling Steers," University of Missouri, Agricultural Experiment Station, Columbia, Missouri.

"Wheat Is a Good Hog Feed," "Hogging-Off Wheat," "Rations with Wheat for Chickens," and "Wheat for Dairy Cows," Purdue University, Agricultural Experiment Station, Lafayette, Indiana.

Manufacturers of feed grinders include the following:

Algoma Foundry & Machine Co., Algoma, Wisconsin; Baker Mfg. Co., Evansville, Wis.; C. S. Bell Co., Hillsboro, Ohio; N. P. Bowsher Co., South Bend, Ind.; A. M. Dellinger, Lancaster, Pa.; Fairbanks, Morse Co., Chicago, Ill.; Freeman Mfg. Co., Racine, Wis.; Gehl Bros. Mfg. Co., West Bend; Wisconsin; Gruendler Crusher and Pulverator Co., St. Louis, Missouri; International Harvester Co., Chicago, Ill.; Letz Mfg. Co., Crown Point, Ind.; Myers-Sherman Co., Chicago, Ill.; New Holland Machine Co., New Holland, Pa.; Papec Machine Co., Shortsville, N. Y.; Prater Pulverizer Co., Chicago, Ill.; I. B. Rowell Co., Waukesha, Wisconsin, Sandwich Mfg. Co., Sandwich, Ill.; J. B. Sedberry Co., Utica, N. Y.; Stover Mfg. & Engine Co., Freeport, Ill., and the W. W. Feed Grinder Co., Wichita, Kansas.

Premier Announces New Model

The Premier Vacuum Cleaner Co., of Cleveland, Ohio, has announced two new, improved floor models known as the new Premier Junior, Model 98 and the new Premier Duplex, Model 99. According to the manufacturers, the new Premier models, although essentially the same in appearance as models 74 and 53 which they replace, are noticably superior from the standpoint of cleaning power and efficiency.

Radio Show Has Record Crowds

Appeal of Television Led in Public Interest

The eighth annual Radio Electrical World's Fair closed September 26th at Madison Square Garden, New York City, after a week of record daily attendances and great interest shown by the show visitors in the new set models, in television and in broadcasting from the Crystal Studio. Observers at the Garden estimated the crowd would equal, if not surpass in number that of last year's show, when about 225,000 people passed through the turnstiles.

Reports of unusual business done at the show have been received by the managers. Despite the business depression, and contrary to early expectations, the show management considers the exhibition a "huge success from every standpoint."

Among the contests conducted during the week was the television set-building competition, in which a number of Boy Scouts participated; the winners are yet to be announced. Another was the trouble-shooting contest, in which radio amateurs and professional service men took part. The votes are being reckoned by a jury of judges.

Hundreds View Television

Throughout the week hundreds posed and spoke before the electrical eye of the Sanabia television transmitter.

Television on the large 10-foot screen, which was suspended over the Garden arena, proved to be one of the chief attractions. Broadcasting from the Crystal Studio which was carried over the nation-wide networks of WABC, WEAF and WJZ, and television were perhaps the two most popular of the many show features.

Considerable interest was displayed in the RCA-Victor record-making booth, where visitors made records of their voices to take home and play on their own phonographs or send to relatives. Thousands of recordings were made during the week. The display of epoch-making laboratory apparatus, or their replica, such as were used by early experimenters to determine the principles of electricity, magnetism and induction, never wanted for an audience. A crowd nearly always surrounded the booth of the American Radio Relay League, where messages were transmitted free of charge to distant points. Much interest was shown in home talking motion picture machines, one of which was operated more or less continuously for large gatherings.

Became Broadcasting Center

More than a dozen regular studio features of New York stations were transported bodily to the Crystal Studio each day of the exhibition, and several hundred entertainers and musicians, as well as many speakers, took part during the week. Broadcasting began at 2 p. m. daily and lasted until 11 p. m.

In many ways the 1931 show was distinctive, despite the fact that the crowds did not seem so large because of the greater width of the passage-ways between booths. The displays were most attractive and the general decorative schemes and lighting effects appeared to be more acceptable.

Purdue Rural Electrification Conference

The Purdue University Agricultural Experiment Station announces its annual conference on Rural Electrification which will be held at Purdue University, Lafayette, Ind., under its direction in cooperation with the Indiana Electric Light Association on November 12, 13, 14, 1931.

The purpose of this conference is to bring together people interested in the advancement of the use of electricity on farms for the purpose of discussing common problems and to learn recent facts ascertained by investigation. Recently developed farm electric

(*Continued on page S 16*)

By H. S. HINRICHS

Illumination of Farm Buildings

THE proper illumination of farm buildings should be considered as a specialized industrial lighting problem. It is of course impractical to install an expensive lighting system in the ordinary farm buildings. However, the proper consideration of a few fundamentals of correct illumination need not materially increase the cost of the installation, while at the same time radically improving the results secured.

Briefly, a correct lighting system may be described as the installation of the type of lighting fixtures best suited to farm building conditions, so located as to secure correct illumination, protection of the units from physical injury, and serviceability of the entire installation.

In this and several subsequent articles, a few of the important details of farm building lighting system design will be discussed with the full realization that it will be impossible for the contractor to sell his prospects on an ideal installation in every case. However, those who definitely strive to improve such installations will not only be able to increase their own business, but also materially add to the satisfaction derived by their cutomers from the use of such installations.

The Light Fixture

The features demanded of a barn lighting unit are durability, safety, distribution of light, and nominal cost. Included in the factor of durability is the proper protection of the light bulb from breakage.

The light fixture should provide a mounting for a reflector, even though the reflector may not be installed immediately. In order to make efficient use of all light produced, a reflector is necessary, since the walls and ceilings of most barns have poor reflecting qualities. The type of reflector which has been used with excellent results is made of pressed steel, porcelain, enameled inside and out, white inside, and has a threaded neck. Such a reflector, together with a socket, similarly threaded, form a permanent durable unit. The threaded feature permits removal of the reflector for cleaning quickly and easily, without sacrificing strength or durability. Such sockets and reflectors are on the market in a variety of sizes and shapes, thereby being easily secured and adaptable to practically every lighting requirement.

COMING MEETINGS

OHIO STATE SHORT COURSE. State Short Course to be held at Ohio State University, Nov. 5, 6, 7, 1931.

TEXAS SHORT COURSE. Second Annual Farm Electrification Short Course at Texas Agricultural and Mechanical College, College Station, Texas, November 5-7, 1931.

PURDUE SHORT COURSE. Annual short course in rural electrification at Purdue University, Lafayette, Ind., Nov. 12, 13, 14, 1931. Address T. E. Hienton, Director, c/o Purdue University for details.

MISSOURI FARM ELECTRIFICATION SHORT COURSE. Third annual short course under direction of Missouri State College of Agriculture, November 12-14, 1931, at Columbia, Mo.

BOB'S PAGE

Devoted to Merchandising of Electrical Equipment in Rural Communities

Conducted by Robt. J. Fulton

Human Nature in Selling

EVERY man has about 15 per cent of cussedness in his make-up. Some men seem to carry their percentage always ready for salesmen. They meet you with a scowl and a growl and try to create the impression that they are "hell cats" that will eat you alive. But they are harmless. Not only that; they have their 85 per cent of sterling qualities and after you penetrate their outer shell of cussedness they are worth knowing, making good customers, and very loyal friends.

I know a fine fellow who is stamped a "bear cat" by most of the salesmen who call on him. He made the remark to me one day that he had a lot of fun with salesmen. He said he scared 75 per cent of them half to death before they got started. Therefore, with some it's a game, with same a natural weakness, and with others it is a habit.

Tame Bear Cat Buyers

First, maintain your own equilibrium. Don't get excited. Find out whether the buyer's manner is prompted by his subtle humor, poor digestion or a habit he has gotten into in dealing with anyone who comes in to sell him

Often you can tame them so that they will eat out of your hand by showing your teeth and giving them some of their own medicine.

Second, always use diplomacy. Diplomatic fencing is necessary until you can approach them from the right angle and get a Jujitsu hold on their interest and attention.

Third, show enthusiasm and courage of your convictions. This proves that you are sincere and generally strikes the prospect's sense of justice in a way that leaves no alternative other than to accept.

When you go in to see a man let him know he is face to face with one who has backbone. Self-pride, self-respect and self-reliance must be exercised. The satisfaction of standing your own ground is worth the battle.

Every time you call on a customer there is a sale to be made. Either you sell the customer what he needs or he sells you on the idea that he does not need it. In order to sell goods you must establish a definite respect in the mind of the buyer for yourself, for the product you have to sell and for the house you represent.

If there were no resistance in selling there would be no place for salesmen. Selling is a battle of brains, one intellect against the other, in which we have resistance, doubt, procrastination, stubbornness, etc., on one side and aggressiveness, diplomacy, enthusiasm, determination and careful planning on the other.

The skilled buyer watches every move and gesture and your study of human nature will make you confident while a wishy washy attitude will be overwhelming evidence that something is wrong, either with you, your product or price.

Point of Contact

One of the finest little silken cords in the art of selling is what is commonly termed "the point of contact." One end of this cord is always loose and the other is fastened to the fountain pen of the buyer. To locate this loose end as soon as possible is one of the problems of successful selling. It is

up to you to judge your man and choose your tactics. The man you are trying to sell is materially affected by conditions in his own affairs at the time you call. You have to establish this point of contact or mutuality entirely through your own composure, diplomacy and personality.

Mental attitude or force applies to ourselves, so why not in selling. Whether we convey our transient joy or gloom to the person we are calling on depends upon our own mental attitude at the time.

Preacher—lawyer—mechanic—it doesn't make any difference what territory you cover, you have all kinds of buyers to deal with. There are easy buyers and close buyers—large buyers and small buyers—quick buyers and slow buyers—loud and boisterous buyers, open and frank buyers, sly and fighting buyers. There are no snaps among them and to know human nature means you can tackle any of the above types and come home with the bacon.

There is the right method to take in order to sell any type of buyer. Make up your mind that when you fail to land a customer, it is not due to the characteristics of the customer, but to yourself.

Selling is a process of education. The salesman sells the merchant, who in turns sells the merchandise to his customers, and so on. Twenty-five per cent of business done in one day is the result of a natural demand. The other 75 per cent is the result of salesmanship in one form or another and it is on the 75 per cent that we make our living.

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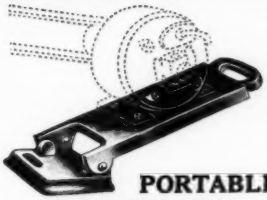

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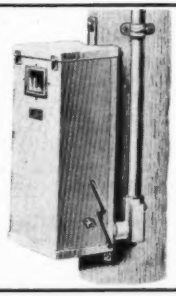

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F. D. KEES MANUFACTURING CO.
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Purdue Short Course

(*Continued from page S 12*)

equipment will be on display and discussed during the meeting.

Privilege of attending the conference will be extended to those who register and no fee will be charged for registration. It is urged that those intending to attend give advance notice to enable those in charge to adequately provide accommodations.

Hotel Accommodations

Rooms may be obtained at private homes near the University or at the hotels in Lafayette. Single rooms at the Fowler or Lahr Hotels may be obtained at $1.50 to $3.00 per day. Single rooms near the University may be secured for $1.00 per night by application at the registration desk or by previous arrangement. *Accommodations at hotels for November 13 will be limited and reservations should be made early.* Where possible, parties should arrange to occupy a single room, as it will be required on the 13th by hotels. Rooms will be available for all desiring to attend at private homes if hotels lack accommodations.

All meetings will be held in the new Agricultural Engineering Building unless otherwise announced and will start promptly at the designated time. Exhibits of equipment will be located in the same building.

Football Game

Saturday, November 14, will be Homecoming at Purdue, with the University of Iowa as the opponent in football at 2 p.m. A block of tickets has been reserved in a good location for those who may desire to attend. Price for tickets is $3.00 each. It is requested that advance notice be given by those desiring football tickets. All reservations should be received by November 13th.

Additional information may be secured by addressing inquiries to Truman E. Hienton, Agricultural Engineering Department, Purdue University, Lafayette, Indiana.

Agricultural Engineers Meet

Convention Well Attended—Varied Program of Interest to All Present

The North Atlantic Section A.S.A.E. Convention at New Brunswick Oct. 15, 16, 17 brought out the largest registration ever recorded. As usual the interest in the program was so intense that sessions ran on far into the night.

Rural Electrificationists found that practically every speaker on the program had something to interest them. Of particular interest were the following:

"Effects of Dairy Barn Temperature and Humidity on Milk Yields."—C. B. Bender, Assoc. Prof. Dairy Husbandry, Rutgers University.

"Electric Ventilation of Farm Structures."—J. L. Strahan, Consulting Agricultural Engr.

"Irrigation Development in the Eastern States."—C. E. Seitz, Prof. of Agri. Engineering, Virginia Polytechnic Institute.

"New Developments in Feed-Processing Machinery."—F. J. Bullock, Experimental Engr., Papec Machine Company.

"The Development of an Electric Dairy Utensil Sterilizer."—H. E. Besley, Dept. of Agri. Engineering, University of Maryland.

"Stationary Spray Plants."—C. A. Arneson, Friend Manufacturing Co.

"Progress in Rural Electrification on the Pacific Coast."—G. W. Kable, Director, National Rural Electric Project.

"Hot Beds, Cold Frames and Propagating Benches."—G. A. Rietz, Ch. of Rural Electrif. Section, General Electric Company.

Burglar Alarms—J. R. Haswell, Pennsylvania State College.

Orchard Insect Control—L. S. Caple, Rochester Gas & Elec. Corp.

Electricity in Poultry Production—N. D. Herrick, Boston Edison Co.

Correlation of Research and Extension Work—W. C. Krueger, Rutgers University.

At the business meeting the following officers were elected to serve for the coming year: Chairman, Prof. B. B. Robb of Cornell; Vice Chairman, Prof. L. G. Heimpel of McDonald College; Secretary and Treasurer, George A. Rietz, of General Electric Company.